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ORIGINAL ARTICLES

NARCOSOMANIA, WITH REPORT OF TWENTY-ONE CASES.

A MONOGRAPH.

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PART I.

IN almost every state of human society we find the practice of using narcotics more or less generally followed; and I am not sure but that among lower animals, if at least transiently, the same thing might be observed.

With the use of these narcotics three conditions are evident, and in our discussion of pathologic phases which the practice may exhibit, we must distinguish, (1) a moderate and restrained use; (2) an immoderate or passionate craving, and (3) a craving which may be either moderate or immoderate, but which is the response to stimulus outside the range of personal initiative. It is this final condition which alone may be construed as "mania."

Some difference of opinion exists as to the right of the limited use of tobacco and alcohol. Inebriety and other excesses are deplorable but scarcely pathologic manifestations. Dipomania, morphinomania, cocaineomania, etc., are pathologic, however, and not censurable errancies, for the simple reason that they are results of that which does not originate within the voluntary objective of the patient, and practices to which he resorts in mistake, but under stimulus which for the time being has deprived him of the exercise of average or normal judgment.

To understand the situation we must admit the nature of the patient as a main factor of the environment in which his little drama is to resolve its unities. Seen from some infinite sidereal perspective, his passions lit like a transient meteor, flare out in darkness amid the conflict. But to the soul which suffers, there are no limits in which to express the misery that his fate brings; the seduction, and the horror he finds in the use of an agent which gives relief only to transform him into a slave of itself and the mere figment of personality bound to the wheel of physical and merciless circumstance. How does this subjection come about?

The patient, we must remember, is the physical product of protoplasmic higher organism. In protoplasm, four faculties are the physiologic index of its essential being: contractility, irritability, metabolism (including oxygenation), and reproduction. [Curiously enough this facultative process is like the arithmetical progression of subtraction, addition, multiplication and division.] In the highest organism the tissue is but a magnified evidence of the original protoplasmic forces,

and each cell, tissue and parenchyma exhibits its activity in terms of physiologic energy the result of diffusion of the original protoplasmic units. All nutritive, therapeutic or toxic agents are directly or indirectly assimilated and produce their effects in modifications of these contractile, irritable, metabolic or reproductive energies. It would be a fatuous nominalism to give separate entity to disease or function; these processes are phenomena based on essential protoplasmic units the effects of whose correlation are registered in personal consciousness as, *initiative, temperament, trophism and sexuality*. Variations in the patient's nervous system, consequently, are reducible to terms of these organic reflexes.

In the individual, then, may be seen physiochemic influences, those of gravitation, adhesion, cohesion and chemism; physiologic or somatic influences, as super-evolved; and psychic or self-conscious influences which are personal and ethical, matters of individual or general habit and convention. Along any of these diverse lines pathologic variations are possible. The nearer the invasion approaches the territory of self-consciousness, the greater the effects on the nervous system. For the nervous system is the probable mechanism of the individual's self-conscious activities. *Vice versa*, any interference with that mechanism threatens the seat of personality.

Four primary modes of attack are notable:

(1) Disorders of initiative. Epilepsy is to be taken as a contractile nerve outburst, incoordinating the psychic circuits, and in consequence of which self-consciousness is temporarily disorganized. The will is no more than a high form of attention. Initiative in epilepsy is incoordinate because the power of attention is reduced. Whatever stimulus continues results in disorganizing outbursts, whose conflict sinks into a stupor during which metabolism clears up the debris and restores the field.

In nearly every mental disease the Will is reduced on account of the difficulty of attentive power.

Besides epilepsy, we may note a continued weakness of the Will in such instances.

(2) Disorders of temperament—Insanity. Not want of logic, but temperamental vice is the cause of insane mental conditions; the psychosensory circuits become vicious, and the perceptions of the patient are no longer coordinated rightly, even if rightly received. The presence of peripheral lesions in cases of insanity is becoming recognized as a source of these vicious reductions; eye and ear difficulties, organic reflexes, and morbid processes such as asthma, and coincident cardiac and hepatic abnormalities are now receiving notice.

(3) Disorders of nutrition—Parageneracy. Either *over* or *under* states of the nutritive interchange constitute, in the nervous system, a source of grave danger. When one protoplasmic faculty is at fault it requires corresponding expenditure in some other part of the cell or organism to effect a balance. Organic friction is constantly a factor in health and disease. The whole evolutionary process of adaptation takes

place along lines of less resistance to this element of friction. The nutrition of the nervous system governs its development and coordination on the one hand and on the other, its conservation. Every food, poison, or therapeutic agent affecting the nervous system primarily enters as a coordinating or a conserving attribute.

(4) Disorders of reproduction—nervous conductivity—if decreased we have neurasthenia; if increased, neurosthenia. The protoplasmic faculty of reproduction as diffused through the body is not limited to the somatic sexual aspect. It means all that power of cell division and parenchymatous intensification, and, in the mind, the process of ideation. In a manner analogous to cell division, in which not new entities are formed, but a single new complex being, so the reproductivity of nerve centres constitutes a momentary organization of them to functionate singly, the union of the self-consciousness of which makes up idea. And a combination of ideas or thought is analogous to tissue organic difference. In neurasthenia and neurosthenia the elevations and depressions of conductivity result in hyper-tonic or hypotonic coordination. Self-consciousness will be impaired in either extreme. A decrease or an increase of psychosensory activity and its fluctuation is to be taken as the root of neurasthenic and neurosthenic disease. This may be peripheral or centric. It may be essential and idiopathic, or secondary and symptomatic. As a symptom it will be found secondary to astigmatism, ciliary disease, anisometropia, auditory strains, nasal irritation, cardiac arrhythmia, gastric incompetence, malnutrition, autointoxications, mechanical difficulties such as flatfoot, etc. In all of these the factor is a variation in nerve conductivity which results in incoördinate or fluctuating stimulus the essential friction of which is not taken up and neutralized in metabolism.

When this amounts to psychic disturbance a resort to narcotics will furnish one superficial mode of relief. An aching tooth may be extracted, but anxiety or excitement will yield only to modifiers of consciousness among which easily obtainable soporifics might first be brought to mind. It is the reflective or self-consciousness alone that seeks the alcohol, morphin, or tobacco, the trophic effects of which are always unpleasant even to their veriest slaves.

I have used the word "narcosomania" advisedly, because it is the narcosis, not the narcotic, which is sought after.

The social status and occupation of the victim modifies the course of the disease. I believe many cases of dipsomania occurring in those previously of low social position, and morally degraded, may be mistaken for inebriety. On the other hand, the substantial citizen fights off any lengthened use of a narcotic—alcohol, morphin, etc.—and resorts to it in slighter doses and shorter intervals.

The business man will arrange to take a vacation; then he will hurry away and sink to the vilest excess, when the climax is passed to regain mental balance and return, cleared in mind, and astonished to what limits he let himself go, and at the same time conscious that the process may repeat itself; which, when he feels again the onset he will prepare for, to repeat the vicious cycle and his subsequent ascent therefrom.

But, in cases in which the irritation will not await a convenient time to satisfy itself (as with busy men, or physicians, who cannot so readily desert their occupations), instead of the complete or isolated debauch,

we may note a slight but more or less persistent nibbling at temptation.

For a while, during the night the victim will give himself up to a restrained use of the narcotic, and, if not at first in excess, the work of the next day will go on. Indeed, during the earlier resorts to this relief the health and countenance of a patient may bear the most critical examination, for the narcotic in that stage, by antagonizing whatever subtle irritation exists, actually seems to benefit the patient; it is only when its more distant but none the less certain effects on the general metabolism are established that the vigil of death or insanity, or social ostracism at least, begins its fearful haunt to the patient's despair.

At this time peculiarities of conduct manifest themselves.

Ill humor, sudden changes of purpose, and, perhaps, a trace of anxiety appears which alarms or surprises his friends. The doctor will not attend in answer to a night call. The business man neglects important meetings; his views are vacillating or insufficient. Any pressure results in irritative outbursts. The drama is now in its second act. Not yet the nightfall adds terror to the situation. But the double burden of business and secret temptation overstrains the already damaged nervous system.

The patient reassures himself. "I will go away, I am overworked." But when he goes away his enemy is with him. The absence of occupation does not relieve him; on the contrary there may be a sudden revulsion. He goes to unintended extremes. This time the debauch gives a factitious benefit which surprises and delights him. "The free excess has killed the desire of itself." And he returns to work.

Soon, however, the old irritation eats at his mind. Again a taste, and again; until the narcotic is being used in surely ascending doses.

Here a temporary illness may break in—possibly the result of undermined nutrition. The enforced regularity of sick-conduct benefits him—although rather against his will. The narcotized effects are now normal to his perceptions—his metabolism has been grooved and worn through to the abnormal influences. Excess plus excess, as a gradual but open resort to the effects, occurs. The patient discloses his condition.

Once reputation is lost, will-power rapidly weakens, and a graver danger is to be met. Suicide, or open debauch, which comes to the same thing, or even desertion of his home and friends, may occur.

With the final loss of Will, insane periods may become continued. Attacks on inoffensive people, or temperamental oddities and intellectual erraticism have been possible in all the later phases of the disease. The peculiar organic effects of the narcotic may have laid the foundation for hallucinations or delusions.

Persecutory ideas, at the root, are connected with a loss of business, or discovery of the patient's misdoing. His best friends are disliked as liable to interfere with the use of the narcotic, so that ill humor to them, or attacks on them, may mean the existence of fear that they are "spying on" the patient, or that he believes them suspiciously interested in his erratic course. Like many delusions, a basis of fact for this may add to the fixity with which the patient holds to his wrong ideas.

All sudden temperamental changes occurring in nervous, neurasthenic or neurotic individuals are evidence that some unusual or artificial force is at work

in his metabolism—probably some narcotic whose open use were discreditable. This will have special reference to morphinomaniacs or cocainomaniacs, chloralhydrate users, etc., but in the case of the use of tobacco, or, with certain individuals, the possible use of alcohol, secrecy is not so large a factor.

For a long while the patient has been uneasy; he is neurotic, nervous or neurasthenic. He is preoccupied in mind, and irritable. Perhaps overwork has little or nothing to do as a cause of narcosomania. Only when excessive fatigue is the result.

For, patients desiring to preserve reputation, and who have been cured, are less liable to relapse, than those who are idle or reckless. The trouble is laid down during the period of adolescence, or earlier—although it is possible that curiosity as to a narcotic, or accident, in late life may account for some cases.

In the majority, the patient as a child has suffered nerve crises.

Nervous chills, eye-strain, gastric incompetency or general neurasthenic processes have created a temperament which is irritable and unstable. This temperament may not oppose natural creative ability. Physique may be good. Intellectual power beyond the ordinary.

In literature and in other forms of art, history shows us men like Chopin, Gissing, Nietzsche, whose lives were evidence of tremendous temperamental strain. That they were able at all to create any completed work is creditable and remarkable. Less fortunate individuals endowed with this extraordinary temperament, that in which idea-association is a neurasthenic process, and who have not the redeeming ability to establish higher unities and broader outlooks, will perish under the weight of intense ideation, emotion, and obviated expression. There must be some relief—either positive creation, completed and satisfying, or—a resort to sleep, or death.

In narcotics there is at once a power to reduce the conflict of emotion, actuality, and initiative. With this numbing of the circuit of consciousness—in earlier stages—goes a peculiar and characteristic isolation of being—a Nirvana in which the soul assimilates and restores itself in heavenly harmony and absence of extraneous new experience. Not long, however. Then comes the metabolic reaction.

The unnatural state has produced an unnatural acceleration of waste and repair, which, by evolutionary unfitness, turns the ideal aloofness into physical incompetency.

While the pendulum sways to extremities, and the organism feverishly strives to regain equilibrium, organic friction consumes the vitality which should have lasted, under normal conditions, through long life of the individual. If the individual were not neurasthenic, not neurotic, not degenerate, this friction—for short intervals—would be less harmful.

But cases of narcosomania start out with a heavy mortgage to pay off, a handicap that is usually too much to overcome. Faulty education, faulty hygiene, excessive competition in modern life, all cap the pathologic climax.

When we are done herding our children at school by age, and study, and when we secure to each individual a suitable education and honorable employment, many of the present drains on the community will cease to be.

The peculiar temperamental field in which narcosomania springs up may be observed in early stages.

Peripheral or symptomatic neurasthenia, no doubt, is responsible for acquired cases. De Quincy suffered torture which only morphin (in his estimation) could relieve. The majority of narcosomantic phases arise in the course of cerebral, or at least centric, associative difficulties. These are due to variations in trophic conditions, and result in alterations of nerve conductivity or initiative. Whether innate vice, or secondary to distant processes, is a matter interesting from the therapeutic standpoint; but the actual trouble is one of essential difficulty of association. While, in the entire organism, life is one complex, in each unit life has also a special value. Cut the cardiac nerve supply, and the intrinsic cardiac forces manifest themselves. Disassociate certain cerebral circuits and the disjunct centres fly off at tangents. Neurasthenic or neurosthenic processes will interfere with the faculty of psychic coordination. Ideas, formed by involuntary psychic aggregations are insistent and evasive. Peripheral body-reflexes become prominent through over or under correlation. Muscle-sense may ascend to psychic weariness, or descend to exaltation. Hepatic, cardiac, or sexual secretions may exert an undue psychic reference on account of sensory asthenia or sthenic reinforcement.

Surprise is essential to clear, repeated perception. Sudden loss of peripheral balance means as much of shock as a corresponding stimulation. Fatigue in the mind is derived from decreased muscle-sense, as well as from the accumulation of present waste products, for both intrinsic and extrinsic strain is here brought to a focus; sexual melancholia—from a weakness of the reflex of sexuality; artificial tachycardia, and other equivalent processes, are also liable to induce states of anxiety or fatigue.

In the neurasthenic, plus and minus states of nerve conductivity are rapidly successive. It is in this fluctuation that we see grounds for the organic incoordination. We must remember there is no reversal of organic force: muscles contract—they do not expand; there is no divided force in nature; only a relative absence of attraction, or a succumbing to divergent greater attraction.

Psychic disassociation is the result of reduction of nerve force, or frenetic local outbursts, and an irregular correlation of the integral circuits according to their own idiosyncrasies or metabolic sins. These involuntary psychic circuits may not be completely disassociated, but the circuits may correlate through multitudinous twistings and turnings, so that the power of attention fails to reduce them to an effective unity.

In the midst of a train of thought a variation in nerve conductivity shifts the balance of power, and, skyrocket ideas, each with its subsequent lights and shadows, burst over the scene. Attention is diffused; and for the moment concentration is multiple. If metabolic reaction seizes hold of the circuit of primary association and clears up the track, the train of thought proceeds—this may not be possible. Ideas, because based on essential processes, have a reality which cannot be disregarded, and the patient may elect to follow one or other of the divergent circuits, losing his original objective.

The symbolic necessity of ideation introduces another factor. Symbolic association opens lines of lower resistance along which thought is urged in spite of intent. When sudden changes in nerve conductivity—nerve instability and inordinancy—are present, those doors fly open. The poet, the musician, the artist, have

their symbolic passageways reduced to rules of advantage, which, in consequence of attentive power, secures them from extraordinary attack. The neurasthenic is at the mercy of suggestion.

Words, emotions, sensations, drift into the current of his ideas like stubborn tree stumps, and fixing themselves, become *points d'appui* around which the eddies circle. In time the channel itself may be modified—delusions crop up when incorrect and persistent figures crowd the chiaroscuro, but the very transiency of neurasthenic processes usually makes for the preservation of the patient; not from worriment, or misconceptions, however.

I would not say that all neurasthenics are potential narcosomaniacs, or that all narcosomantic phases involve neurasthenia. The potential narcosomaniac is the neurasthenic in whom intellect conflicts with sensation or with emotion.

He is the artist gone wrong; or, in the other instance, victim of some essential morbid process which disturbs intellection.

In the latter, it is a physical disorder which drives the patient to the narcotic. In the former, great emotional values, or psychosensory radiations interfere with any positive or purposeful intellectual attempt.

If it were not for the necessity of cumulative dose, and the disorganizing effects of the narcotic, it is conceivable that actual benefit would arise from its use. While the *neurosthenia*, the plus nervous condition resulting from partial disassociation, gives merely a factitious gain, the apparent advantage from the use of the narcotic is derived from its relief to excessive metabolism. But this is an artificial relief, and accompanied by cross-associations which are in the highest degree dangerous.

Every narcosomaniac will admit that certain special emotions are awakened, with which he comes to connect his feeling of relief. The part of the body, or mode of entrance, in which the narcotic plays its part, may excite curious affectations. I refer to sexual or psychic aura which may, indeed, come to precede administration—after the circuit of primary association has been established. The additional danger of hypertonic nerve states is to be reckoned with as productive of asthenic reactions. Excessive metabolism lays up alexins, fatigue products, which become veritable toxins. These are largely causative of secondary outbursts of disorganization. Sexual inversion, melancholia, symptomatic neurasthenia, delusions, hallucinations based on organic abnormalities, gastro-intestinal or cardiovascular disorders, peculiar gait, general tremor, insomnia, etc. But through what vale of suffering has the patient to approach this culmination?

In youth, the psychic irregularities were hidden under intellectual, artistic, or mechanical precocity, it may be. Some cases, undoubtedly, do not develop the soil until the strain of adolescence. Leaving aside cases whose etiology may include some factor of accident, curiosity or design, the majority arise in those who are people of keen, ambitious and determined intellect, but possessed of faulty or neurotic associative ability.

Upon them the troubles of existence strike mournful tones; excessive but unbalanced association develops ideas in which ordinary matters show a tragic significance—while the real tragedies of life fail to bring about a normal reaction; often having merely a presentative value. This is material for making anarchists, murderers, social parasites, tramps, criminals in general.

Change of environment, or some redeeming faculty innate or educative, has proven the salvation of some of these borderland cases.

To others, some day comes an overwhelming revulsion to custom. A glance at some sunset, and a wave of melancholy sends them on a chartless sea of imagining from which they are thrown with a shock of commonplace upon the shore. The loss of guiding attention is the relaxation of higher associative power in the psychic circuits, with their tangential escape, and the accumulation, consequently, of fatigue products or other defective metabolism. The patient may get into a habit of stopping to muse almost in indirection. With the disorganization of the higher faculties the morals will suffer—some carouse, some immorality, some chance acquaintance, may point the way to a narcotic; and the enemy is within the gates.

The sense of subordination, as to an outer agent, may occur with sexual significance. Or it may mean merely any physical relief—although with this relief it is common to observe some sort of psychic morbid current.

Again, after the paroxysm, the relief becomes a positive sense of exaltation, in which period the patient plans some great work, or decides to carry out some large operation.

The razor-edge of his mind drives relentlessly for a time—then comes the muddling of incompetence and, alas, again a resort to the narcotic, and a debauch—out of which a very frightened person comes to himself. Again relief and a determination to be cautious; but caution is thrown to the winds—"whither and whence no man knoweth." All this dosing destroys the relation between the individual and his environment, built up by eons of evolutionary development—that is the final reason of incompatibility—we dare not wrench ourselves out of the grooves of time and space.

These extraordinary conditions of the narcosomantic processes are at once psychic, somatic, and physiochemic. I want to outline certain general changes, leaving the distinctive ones to separate analysis under the several headings.

Marking off the paroxysms, and in the early stages, there are always "between times," during which the patient may manage to carry on the usual affairs of life. Yet under it all there runs a thread of something which is indescribable—emotional crises, psychic astonishments, and dreamy states, which float through his mind and, gnome-like, whisper of the magic visions. He, never from the first, can get away from little tugs and pulls this way and that toward the forbidden land. Lucky is he if some high moral sense, or interest in occupation, warns him from the deadly portals. This kinder fate is rare.

With lowering of moral sense, all sorts of curious physical desires crop out. But I venture to assert a predominance of sexual instincts. It is so often the nose, the breast, the genitals, the abdomen, which the morphinomaniac or cocaineomaniac selects. With alcohol, there is quite commonly some sexual effort associated.

The period of temptation is ushered in with a general malaise, lassitude, or restlessness.

There are interesting voice symptoms. I have always wondered that a more detailed study of the changes in voice in disease has not been made. With the rise of nervous tension, respiration leaves the abdominal type and approaches the thoracic. There is a greater resonance to the accent. Together with this in-

crease of muscular effort, a symptomatic pharyngitis, or even laryngitis, may appear. The patient is annoyed by increasing obscurations in the field of thought. Ideas and emotions shoot into view and fade with tiresome interference. The excess of thought gives a factitious feeling of exaltation; but nothing comes of it.

The patient may just have received some wages, or completed some business or literary work. It is not so that a relapse from strain accentuates the morbid impulse. At this time, rather, there ought to be less disorder of metabolism. But the patient for some time has been fighting, subconsciously, the impulse to narcotics, and the work, if completed, is a tribute to the will-power, and an indication of the possibilities of cure for the disease.

But, with the restlessness, come spells of absentmindedness from which he awakes standing in front of a mirror, watching his face, as if to read the struggle within, or, he may have been gazing out of the window saying meaningless, or pointless words, such as, "*je suis, je suis . . . malheureux*," as one of my patients told me he did.

From this he passes to an excess of energy, in the midst of which a sudden thought to take the narcotic sweeps him off his balance. He does so. Then caution entreats him. He covers his tracks. He goes to his room and locks the door, with word that he is ill, or wants to sleep. Or he goes out of town. The debauch seizes him.

In the beginning there is a heavenly sense of calm. He will not proceed rapidly. But the pulse quickens. Ideas flow. He has the solution for problems which annoyed him—he will note it later—now—now, he must enjoy the peace which he has dared to lay hands on.

With a psychic disassociation, comes the sense of double personality. He watches himself, and watches himself watch others. He will guard himself from excess; no, he will see what it comes to, and on he goes in the mad incorrelation. His heart gives great bounds. His head is swathed in tumultuous sensation—his trace of personality floats like a lost star through the storm. Around him, in the vicious circle of thieves, gamblers, ruffians, degenerates, into which he has cast his lot, no one appreciates him for what he is.

Suddenly comes reaction. He would have no more of the narcotic—or its consequences.

In some cases, for good reasons, all this debauch takes place privately. By some means, degraded associates are obtained. Again, the whole process may be an imaginative one, for the patient may wish to, but dare not go out into the environment his disorganized temperament longs for.

The paroxysm over—weak, trembling, pallid, clammy, his body revolts. And the soul steers its shattered craft for the nearest harbor.

I doubt not but that Poe's greatest work was written in the revulsion and clearing thought of alcoholic after-effect. Other artists given to debauch may also have experienced the peculiar rarity of mental atmosphere after the storm. Outraged metabolism has swept the demons from their stronghold, and the birds are singing as in the trees of Spring. It is but a faulty mechanism that appreciates this, and even the fears and despair of the conflict, soon and easily forgotten in incorrelate mnemonic force, do not prevent, after a time, new ventures into the territory of shame.

Taking up seriatim the several more common narcotics, alcohol will have our first consideration.

ILLUSTRATIVE CASES DUE TO EYE-STRAIN WITH EXPLANATORY REMARKS CONCERNING THEM.

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PART III.

CASE No. VII. is equally instructive as was Case No. VI. to those who are really anxious to learn to what extent eye-strain alone can cause persistent symptoms that have apparently been due to some organic disease.

This young lady slowly acquired without apparent cause an aggravated type of persistent deformity; in spite of all efforts made by her physicians to arrest it or to relieve the accompanying pain.

The arrest of her eye-strain alone cured her—after nearly two years of intense suffering—although she had never had much if any discomfort referable to her eyes, and naturally her physicians had never associated "eye-strain" with the case.

This remarkable and complete cure has been previously reported by me in connection with a letter written by me to the editor of the *New York Medical Journal* (October 25, 1902), in which I criticised the employment of mechanical or surgical treatment for the relief of "wry neck" prior to a careful investigation for eye-strain and other causes of reflex-spasm.

Case VII.—An Extreme Case of Wry Neck, Requiring the Use of a Pillow Between the Head and Shoulder Both Day and Night, and Accompanied by Most Intense Pain. Complete Cure by the Relief of Eye-Strain.

Miss R., aged twenty-seven, school teacher, was sent from Pennsylvania in September, 1897, to Dr. Robert T. Morris, the distinguished surgeon of New York, to be operated upon for wry neck. Her condition was so extreme and the symptoms so aggravated that Dr. Morris stated honestly to the patient that operative procedures were not usually satisfactory in that type of case. He referred her to me for examination of her eyes to see if any unsuspected eye factor existed that could possibly produce such aggravated symptoms.

History of Case.—The history obtained from this patient by me was as follows: Up to twenty years of age she was perfectly well and never had a doctor. She had the right ovary removed for a tumor at twenty years of age. After that operation she was perfectly well until eighteen months prior to her visit to my office.

In February, 1896, her head began to twitch, first to one side and then the other. It then gradually twisted toward the right side, with very great rigidity of the left sterno-mastoid muscle. There was then no acute pain; but a general sense of soreness existed in the neck. She was first treated for it by Dr. Doll, of Elmira, with electricity and massage, and improved sufficiently to enable her to return to her profession.

In November, 1896 (ten months prior to her visit to New York), she was suddenly seized at the dining table with severe cramps in the muscles of the left side of her neck. These paroxysms were accompanied by the most intense pain. Her chin became twisted so that it turned over her right shoulder, and the entire head was drawn toward the right shoulder. The muscles of the neck became rigid like bars of iron; and for two weeks she was kept under the influence of heavy doses of opiates.

This condition has persisted without cessation ever since that seizure (ten months previous). She has had to give up all attempts at self-support. She has been unable to sleep without morphine in regular doses. She weighs only one hundred pounds; and can walk but

very little on account of weakness and pain. She has carried constantly for many months a pillow between her head and her shoulder in order to support it. Without such support, the pain becomes almost unendurable.

The appearance of this patient on entering my office I shall never forget. An extremely delicate and emaciated girl, with a pillow packed between her occiput and right shoulder, with extreme deformity due to twisting of her head, and with a face indicative of the most acute suffering. Any attempt to straighten her head caused the most acute agony. No amount of manipulation could at first alter the position of the head sufficiently to properly adjust it for eye tests.

Eye Tests.—Strange as it may seem, she had suffered during her life with but slight asthenopic symptoms and had used her eyes constantly with average comfort. She showed (under atropine) only a moderate degree of astigmatism and hypermetropia ($+0.50^{\circ}$ $+0.75^{\circ}$ axis 90°).

An examination of the eye muscles, however, disclosed marked "heterophoria" (maladjustment).*

Treatment and Results.—The full details of treatment of this case cannot be given at this time; but it will suffice for me to state here that a full correction of the refraction by glasses and two graduated tenotomies upon both interni effected a perfect cure. The duration of treatment was about three months; during which time she gained over twenty pounds in weight and used no drugs. Her pain ceased almost immediately after the first tenotomy.

On June 27, 1902 (about five years after my treatment), this patient dropped unexpectedly into my office. She reported that the cure had remained permanent; and that she had been able to teach and be self-supporting.

The only relapse that she had experienced was during a school period when her glasses had been broken and were sent away for repair. The neck began to be somewhat painful and stiff at once. This disappeared on resuming her glasses.

Case VIII. is another remarkable instance where "eye-strain" alone produced extreme and persistent deformity of the head, face, neck, arms and hands; yet, for years the exciting cause was unsuspected and was discovered by me after the patient had been taken by her physician all over the state in which she resided, for exhibition before medical societies, and for new suggestions relative to the treatment of her progressive deformity. It was regarded by all who saw her as a result of chronic disease of the spinal cord.

Photographs of this case, taken at intervals during my correction of her eye muscles, are even more startling to one unfamiliar with this type of scientific work than are the recorded facts. Unfortunately, they cannot be reproduced here.

To take a hopelessly deformed cripple unable to work or hardly to dress herself, and to make her for the past 15 years a self-supporting woman in a manufacturing establishment (after six months of eye treatment without drugs) is certainly a result worthy of careful thought in the minds of unbelievers.

Case VIII.—Progressive and Extreme Deformity of the Head, Arms, and Hands. Choreic Distortions of Features Under Excitement and Alarming "Choking Spells." Previous Diagnosis of Organic Spinal Disease. Perfect Recovery After Relief of Eye-Strain.

This pitiful sufferer had been exhibited by her physician

*See preceding table of technical terms.

for many months before different medical societies in his state for the purpose of obtaining a diagnosis and suggestions regarding treatment. The case had repeatedly been pronounced by neurologists to be one of organic disease of the spinal cord. No hope of recovery had ever been given, nor had drugs caused any improvement.

Miss C., aged twenty-six, referred to me for diagnosis on February 27, 1888, by Dr. J. J. O'Connor, of Holyoke, Mass.

Family History.—This could not be satisfactorily ascertained.

Eye Defects.—Hypermetropia $+0.75$; esophoria (mostly latent) 20° ; left hyperphoria 3° ; adduction 22° ; abduction 5° ; right sursumduction 2° ; left sursumduction 5° .

History of Case.—The remarkable and progressive deformity which had developed in this patient before I saw her had made her quite famous in the state where she lived.

As this girl's condition has been published by me of late (in a letter to the editor of the *New York Medical Journal*, relating to the treatment of wry neck), I take the liberty of quoting her clinical records as given there. I say:

Dr. O'Connor, of Holyoke, had never been able to get a satisfactory diagnosis of her case. Her symptoms had lasted for sixteen years and had been steadily progressive. Her neck, arms and hands had become markedly stiff and distorted. She had suffered untold agonies and was no longer capable of self-support.

Several photographs of her were taken by me (during the few months that I had her under my personal observation) to show the remarkable and progressive restoration to health under eye treatment alone. When I first saw her, the deformity of her head was very remarkable. The chin was pushed forward and downward, so that it was held fixedly in close proximity to her chest (about the level of the fourth button of her waist). She could not raise the chin or move the head. Both arms were also horribly distorted. The elbows, wrists and fingers were semiflexed; and any attempts to use them caused excessive trembling. She had not been able to work for some four years. As she entered my office for the first time, she looked like a horribly deformed person in a crouching attitude, with trembling hands and limbs, with eyes looking from under her eyebrows, and with head almost at a right angle to the spine.

Whenever she attempted to speak, or in any way became excited, she would be seized with what she called "choking spells." These would shut off her breath to an alarming degree; and her face would at once become distorted with horrible grimaces, chiefly about the mouth.

There had been for years a severe and almost constant pain in the neck; but no painful points to pressure existed. No impairment of sensation either of touch, pain, or temperature existed. Motility was perfect. There was no incoordination or impairment of the muscular sense. No evidences of an organic spinal lesion could be discovered.

Treatment and Results.—In this girl, three graduated tenotomies were performed by me upon her eye muscles. Over twenty degrees of esophoria (a tendency of the eyes to deviate toward the nose) and about three degrees of left hyperphoria (a tendency of the left eye to

assume a higher plane in the orbit than its fellow) were satisfactorily relieved by these operations. She had only a very slight refractive error; hence no glasses were ordered.

The result was a steady cessation of her symptoms and a practical cure. She was able to hold her head perfectly erect within a few months; was cured of all pain almost as rapidly; regained the use of her arms and fingers within a year; and became self-supporting again as a factory girl within a year.

A report of this case was sent me a few years ago. The patient had slight choreic movements of the face under excitement but was practically cured. I presume that some further work upon her eye muscles may still be required to establish a perfect equilibrium; but she had never been able to bear the expense of a trip to New York, up to the date of the last report. I still have the photographs that tell their own story more forcibly than words.

A letter from the patient has fortunately reached me within the past week. She reports that she has had the sole care of her mother for the past year, after the development of insanity; that the headaches have been quite frequent of late; and some facial twitching has developed during the last twelve months. This confirms my opinion that she probably needs a change of glasses.

She closes her letter as follows: "Your treatment has kept me alive all these years. It was the only thing that gave me relief. You have my praise constantly for all you have done for me."

Case IX. is one of complete recovery after the cessation of eye-strains from an apparently hopeless attack of nervous prostration. It had kept the patient in bed for months, and had made her a helpless invalid for nearly six years.

So complete was the restoration to health that the former invalid has now become a teacher of physical culture. The following history will make the severity of the sufferings entailed by eye-strain more apparent to my readers:

Case IX.—Complete Nervous Prostration for Over Five Years, with Constant Pain in the Head and Total Inability to Sew, Write, or Read.

Miss F. Single. Aged 21 years. Was first seen by me in 1886.

Family History.—Several ancestors had died of phthisis. Two cousins had chronic St. Vitus' dance.

Eye Defects.—Patient had hypermetropia of 1.25 D. and manifest "exophoria" of 2°. A latent "hyperphoria" was subsequently discovered.

History of Case.—This young lady was carried into my office in the arms of two men; and brought to my door in a carriage from the depot.

For several years she had been carried daily from her room to the library of her home. After reclining in a chair for a few hours she would be again carried to her bedroom.

With the greatest difficulty she could walk across a room slowly; but out-of-door exercise had been impossible for over five years.

From the commencement of her recent collapse (nearly six years prior to her visit to my office) she had been unable to see her friends or to read, sew, or write on account of a constant pain in her head, which became intolerable on excitement or the use of her eyes.

These symptoms developed suddenly while she was

at a boarding school. She was removed by easy stages, and in a recumbent position from the school to her home.

No treatment has given her any marked or permanent relief.

Treatment and Results.—An investigation of her eye muscles disclosed a combination of both "exophoria" and "hyperphoria"* of quite a high degree. Most of these defects were "latent" at the first interview.

Subsequently the left eye was lowered several degrees, and the eyes were made parallel by graduated tendencies upon both externi.

Her improvement was almost instantaneous. In a few weeks she was sent home with no headache and with daily-increasing strength.

Her physician wrote me some weeks later regarding the marvelous restoration of health. He says: Your patient is the wonder of this region. She rivals the "Jersey Lily" in her feats of walking.

Two years later this patient was appointed as instructor in physical culture in a college.

No report of a return of her old symptoms has ever been made to me during the past eighteen years.

Case X. may be more intelligently considered in connection with the one which immediately precedes it (Case IX.); because the symptoms were nearly identical in each and the complete recovery was rapidly effected in both instances by eye-treatment after drugs had failed to accomplish anything but temporary modifications of the symptoms.

In the following case a surgical step had been discussed for the removal of the coccyx; and the patient had always attributed her sudden loss of the power of walking to a blow upon the coccyx from a fall. Yet all the symptoms disappeared permanently after a cessation of unsuspected eye-strain.

I reported some months ago in the *New York Medical Times* (June, 1904), a case of paralysis following chorea that made a complete recovery after the cessation of eye-strain; although the diagnosis of a brain tumor had been made by a neurologist of international repute. I refer again to this case in connection with Cases IX. and X. because of the loss of the power of walking.

Case X.—Loss of the Power of Walking for Two Years, with Severe Coccygeal and Spinal Pain. Complete Cure After Relief of Eye-Strain.

Mrs. H. Aged 42. First seen by me in 1886.

Family History.—Generally good. No heredity toward nervous diseases. Headaches not unusually frequent among ancestors. No tendencies to phthisis.

Eye Defects.—Under atropine, a hypertropia of + 1.50 D. "esophoria" of about 20° (mostly latent). No hyperphoria.

History of Case.—This patient had always been a reasonably strong woman until she fell backward from a step, striking her spine and coccyx. Almost immediately she seemed to lose confidence in walking, and soon was put to bed under the care of a trained nurse.

Naturally the fall was regarded as the immediate and the only cause of the nervous collapse. No improvement seemed to follow electrical or medical treatment; combined with almost complete rest for a period of nearly two years in bed or upon a couch.

A tenderness that existed over the coccyx led to a proposal from one consultant to excise the coccyx.

*See preceding table of terms relating to anomalies of the eye-muscles.

Fortunately this surgical step was never taken; and a complete recovery was effected without it by a line of treatment that had not up to this time been even suggested.

Treatment and Results.—After I was called in as a consultant I examined the eyes of the patient and advised an immediate surgical relief of the exophoria.

I took the ground that the "eye-strain" which existed had caused a nervous leak that had unconsciously led up to the physical collapse of the patient; that the shock of the fall had unquestionably served to hasten this collapse; that the "eye-strain" was still a factor in maintaining the physical depression which it had helped to create; and that a complete cessation of eye-strain would give Nature the best chance to re-establish health.

Two graduated tenotomies upon the interni for the relief of the existing "esophoria" were performed by me upon this patient. Within a week she began to walk about the room. In less than two months she was able to walk to her carriage. In less than three months she had completely regained her health. No relapse has ever occurred. She is to-day a perfectly well woman.

General Summary and Conclusions.

In closing this somewhat lengthy article, that has been prepared chiefly to instruct the medical practitioner regarding facts that are not yet recognized as they should be, I would say:

1. A knowledge of the possible effects of eye-strain upon mental and physical development cannot be too widely disseminated.

2. The direct causal relationship between "eye-strain" and nervous diseases is too well established to-day to require further proof, or even to justify further discussion.

3. The modern methods of testing for anomalies of adjustment of eye muscles are the only ones that can furnish us with scientific and accurate information.

The time has happily passed when any oculist can instruct a patient to simply follow some object held before the eyes with the eyes; and then on that test alone give a final decision as to whether maladjustment of the eye-muscles exists or does not exist. Two decades ago this was about all that anybody knew about eye-muscles. To-day the mere tyro would not dare commit himself on such tests.

4. The cure of disease to-day is intelligently based on the search for its cause rather than on an indiscriminate use of drugs; and the prevention of diseases is rapidly becoming more important to the medical mind, and also to the laity, than its cure.

5. The detection of "eye-strain" in youth is an important step in preventive medicine, and the arrest of a nervous leak may save many a child from a permanent break-down when an adult.

6. The study of facial expression and head posture is destined to become an important aid in diagnosis.

7. The governing boards of institutions for the feeble-minded, the epileptic, and the insane will sooner or later be compelled to investigate more carefully and earnestly than in the past the eye conditions of their inmates.

8. The prescribing of glasses to correct errors of refraction has always been considered by me as vitally important in the treatment of eye-strain. It should always be done most accurately and scientifically.

9. It is imperative to do this first; and to have pa-

tients wear glasses for refractive errors constantly for some time (whenever marked muscular errors exist) in order to determine if they are modified by the refractive correction.

10. REFRACTIVE ERRORS* may cause "apparent heterophoria" in a certain proportion of cases; and proper glasses may sometimes modify "genuine heterophoria."

11. There is indisputable proof that genuine heterophoria may co-exist with refractive errors (as an independent source of eye-strain), and it may also be found in cases where absolutely perfect refraction exists.

12. Eye-strain cannot be recognized too early in youth.

13. Its scientific investigation by modern methods and its radical correction may favorably modify both physical and mental development.

14. The neglect of an existing eye-strain may in time allow it to exhaust the reserve nerve capital of the sufferer and produce untold ills both of body and mind.

15. No child should ever be allowed to begin education until it is known that its eyes are properly fitted for the work.

16. Legislative enactment should, and surely will in time, compel an eye-examination of every child before it enters the public schools.

17. Teachers should also be instructed in the rudimentary steps of vision testing.

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A REVIEW OF EXOPHTHALMIC GOITRE: A CONSIDERATION OF ITS TREATMENT.

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EXOPHTHALMIC Goitre, Graves' Disease, Parry's Disease also sometimes called Basedow's Disease, is a chronic affection of doubtful origin, characterized by a diversity of signs, the most striking of which are enlargement of the thyroid gland or goitre, prominence of the eyeballs or exophthalmus, abnormal rapidity of the heart's action or tachycardia, and an involuntary trembling of certain muscles constituting the tremor.

In addition to these cardinal symptoms there also occurs a variety of vasomotor phenomena, and other symptoms of disturbance of the central and peripheral nervous system too numerous almost to mention.

Exophthalmic goitre is a disease of early adult life, and is far more common in women than in men, the ratio being about 5:1. Rarely the disease has been observed in infancy, and childhood, and even in old age. The affection when it does occur in childhood has choreic symptoms of a pronounced type: the tremor is often absent in children.

It occurs alike in all races with the possible exception of the negro, in whom it is said by some authorities to be rare: unlike simple goitre this disease is not endemic.

Predisposing causes: Graves's disease is most common in persons of the neuropathic type, and in neuropathic families: in persons of emotional tendencies; indeed the nervous symptoms of the affection are almost wholly due to a derangement of the emotional nervous system. It has been called "a ponsmedullar neurosis consisting in the exaggeration and permanence of the physiological phenomena of emotion."

*A table of these is given on a preceding page.

The disease may develop after exposure to fright: symptoms of the disease may be brought on in a very rapid manner after some nervous shock due to fright, worry, excitement, or disease; both pregnancy and childbirth may aggravate or bring on the trouble; these causes have all been observed, but how they act in bringing on such symptoms can only be explained by theory. Mannheim says "only an organic lesion of the nervous system can explain all the symptoms," others imagine a fright centre as well as a speech centre that may be congenitally weakened.

Putnam says, "we are as ignorant of the real mode of action of the emotional cause as we are in the case of Acute Chorea or Paralysis Agitans." He also thinks a special predisposition may exist in all cases.

There are many advocates of the so-called "toxic theory," who account for the trouble as due to a toxæmia caused by substances eliminated by a diseased thyroid gland, or by an excess of normal secretion. It has been stated by one observer that the secretion of the thyroid is increased in Graves's disease, and probably altered. Horsley believes a perversion of function exists in the gland.

Chlorosis has often been seen in conjunction with exophthalmic goitre, and should be considered in the etiology. Infectious diseases, injuries of the nose, and auto-intoxication from the intestinal canal have also been named as causes.

After a brief résumé of the various theories as to the cause of the affection we are left in a quandary. Putnam thinks the neurotic theory is certainly a reasonable one while Möbius favors the toxic theory, and cannot account for the symptoms on any other grounds.

Putnam draws the pictures of Myxœdema and Thyroidism side by side, and infers that if in one there is a deficiency of thyroid secretion and in the other an excess, then there must be a middle point corresponding with health, and in this state the nervous system must be largely influenced in its workings by a normal amount of thyroid secretion. He concludes that the symptoms that are always united together to represent Graves's disease must not only manifest the action of the toxine eliminated by the thyroid gland, but that these symptoms must also bear a certain physiological relationship.

Finally in our consideration of the etiology, it is worthy of note to contrast that remarkable and almost constant group of symptoms that are seen in the patient with Graves's disease; the rapid pulse, the emotional disturbance, the tremor, the loss of flesh, the intolerance to heat, the sweating and other vasomotor symptoms with the slow pulse, the extreme apathy, the dry harsh skin and coarse hair, the cutaneous œdema, and the intolerance to cold of the patient with Myxœdema. The thyroid extract administered to the myxœdematous patient acts as a true specific; the same extract given in overdosage causes a rapid pulse, the symptom most prominent and so significant in Graves's disease. These facts seem to demonstrate a relationship between Graves's disease and the Thyroid secretion.

It appears quite plausible after reasoning in this way, that some anomaly of the Thyroid secretion may be the cause of Graves's disease, either an excess in the quantity or a fault in the quality.

By means of the stomach tube we can determine the quantity and quality of the secretion of the gastric glands, and in this way its physiology and pathology

have been studied, but as F. C. Shattuck points out, we have no such means of studying the thyroid secretion, and therefore there is as yet no absolute proof that it has any relation to the disease.

The first symptom complained of by the patient in most cases is enlargement of the thyroid, but this may not appear until the other symptoms are quite evident, and in a certain proportion of cases it is entirely absent. The right side of the gland is usually the larger; arterial swirring murmurs are often to be heard over the tumor; at or about this time the mental symptoms are evident, such as restlessness, excitability, or even delirium and insanity; the patient may be in unnatural good spirits, or may be depressed. There is often inordinate thirst, and desire for food. Hysteria and epilepsy are complications.

The tremor of Graves's disease is very fine, and is usually seen only in the hands; the voice is often high pitched with a tremulous quality. The patient is easily excited, and is worried and frightened over matters of little consequence to the normal individual. The mere counting of the pulse may send its rate up several degrees, and exertion such as going upstairs is sure to do so.

The Tachycardia is practically always an early symptom, and is considered most important in the diagnosis of the beginning cases: with it palpitation and irregularity of the heart are common; there is not usually a real endocarditis associated, but the heart is apt to be dilated, and a loud systolic murmur may be heard. The pulse rate is frequently as high as 150, and it has been observed to be 200 or more.

Pulsation of the carotids is commonly noticeable, and other vasomotor disturbances as flushing; this local vasomotor dilatation is sometimes very marked. The pulse at the wrist may be small when other vessels, as those in the neck, may be beating forcibly. Œdema of the lower extremities sometimes occurs.

Symptoms that are especially common, and undoubtedly of vasomotor origin are,—profuse sweating, diarrhœa, hæmorrhage from the nose, and other uncous membranes and exophthalmos.

In the eye we may see beside exophthalmos and paralysis of the different muscles, retraction of the lids called Stellwag's sign, and inability to converge. When the patient looks downward the so-called Graefe's sign may be observed,—the upper lid then does not follow the eyeball as in health, but remains more or less immovable. The retraction of the eyelids causes an increased palpebral fissure: this sign may exist independent of the exophthalmos; the inability to close the lids may cause corneal ulceration. The protrusion of the eyes may vary in intensity from day to day showing that it is largely due to congestion in the first stages of the disease; later it may become fixed owing to accumulation of fat in the orbit.

A typical case of Graves's disease is easy of diagnosis. The diagnosis of the disease is most important in atypical cases, and in the early stages when it is often overlooked or unsuspected. Thomson describes severe and fatal cases in which both goitre and exophthalmos have been absent. Any one of the cardinal symptoms may be absent, or if present, unnoticeable, the rapid pulse alone being the most constant symptom, and the most important one in the diagnosis of early cases. If any of the typical signs come on after the patient has been exposed to fright or other severe emotional ex-

citement; if there is without apparent cause, an increased amount of nervousness, and tremor, on the part of the patient; if there is a persistent tachycardia, a diarrhoea apparently without cause, and hard to control; persistent sweating, and frequent flushing of the face, attacks of palpitation, loss of flesh, high temperature; such a group of symptoms should lead us at once to suspect this disease.

In the treatment of exophthalmic goitre, two indications present themselves. The first is the symptomatic, whereby we seek to alleviate the symptoms of functional derangement so numerous and often very troublesome in this affection. By the second indication we infer the means at our disposal whereby we may hope to influence the course of the disease by more or less specific treatment.

All authorities agree that rest with only moderate exercise is of utmost importance. If symptoms are severe rest in bed is essential. The patient should be impressed with the necessity of avoiding all forms of excitement and worry as far as possible.

A change of climate often does good, and in the summer especially, a few weeks in a cool quiet resort will prove of marked benefit.

In the symptomatic treatment of Graves's disease, many drugs have been used. Belladonna was found useful in some cases, but Murray has often been disappointed in the results obtained with it. The cardiac stimulants, digitalis, strophanthus, and convallaria all have their advocates; the first, according to Shattuck, should not be used unless there is evidence of insufficiency of the heart muscle. Strychnine likewise should be avoided. In cases in which there is marked nervousness and tremors, the bromides are found very useful, and are usually well borne by these patients. Iron and arsenic, the latter in the form of Fowler's solution, given at first in small doses, and gradually increased, have proven of advantage in many cases. Electricity is said to be useful by some authorities, but the general opinion seems to be that the good which it has done in this as in other affections has been largely exaggerated. For diarrhoea common in this disease, bismuth, laudanum, and dilute sulphuric acid are the drugs most often mentioned. The severe attacks of palpitation may be relieved by the application of an ice bag over the precordia.

The recent literature is interesting concerning the more specific treatment of Graves's disease, and several new methods are mentioned, having for their object the bringing about of a resolution in the enlarged thyroid.

The surgical treatment of the thyroid by the removal of one or both cervical sympathetic ganglia is, according to Putnam, a treatment of great value in certain cases, but is apt to be attended with serious risk to the life of the patient; local anesthesia by cocaine is used instead of ether. The operation of thyroidectomy is generally considered a dangerous procedure, but has many advocates. In a report of 190 operations collected by Starr, 74 were reported completely cured after an observation of two to four years, 45 of the cases were improved, three were not benefited, and 23 cases died very soon after operation. It is as yet a matter of doubt whether death in these cases of operation is due to excessive absorption of the Thyroid secretion, or to a toxæmia caused by the removal coincidently of the para thyroid glands. We do not know to-day just what part the para thyroids play in the animal organism.

The serum treatment is at present attracting the attention of some observers, and has been tried with good results. The anti-thyroidin has its use based on the view that Graves's disease is due to an overproduction of Thyroid secretion. It was introduced by Ballet, and consists in employing the serum from the blood of thyroidectomized animals. Burghard suggests using the blood of patients with Myxœdema. Möbius has used with some success the serum of a sheep deprived of its Thyroid gland.

Lanz has removed the thyroid gland of goats, and given their milk with satisfactory results. The glandular extracts, thyroid, thymus, splenic, and suprarenal, have been tried with success. The Thyroid, however, would seem theoretically to have the property of aggravating the symptoms of this disease, and some consider its use dangerous.

Iodine has been used internally to establish resolution in the enlarged gland. It is also used externally in the form of the tincture and in ointments, but perhaps with more effect in cases of simple goitre. Thomson, of New York, believing the disease to be caused by an absorption of toxins from the intestine, treats his cases with mercurials, and gives especial attention to the diet.

Quinine is a drug which of late has been employed with excellent results in Graves's disease, and of all the remedies yet proposed seems to come the nearest to a specific; the salts used are the Sulphate and the Neutral Bromide. There is little in the literature relative to the employment of the Sulphate in Exophthalmic Goitre. In an article written by Paulesco in '99, however, I find mention of its use, and also a theory as to its action in these cases: he gave 30 grains of it in two divided doses after the evening meal. The drug, he claims, produces a vaso-constriction of the vessels of the head and neck, thereby rendering the goitre smaller, diminishing the pulse rate, and even reducing the exophthalmus.

Concerning the use of the Neutral Bromide of Quinine, to which I wish to call your attention particularly, there is as yet no literature. It is a new remedy, and was suggested originally by Forscheimer, of Cincinnati. The patients, according to James M. Jackson, should be under observation for at least two years, as relapses are common. There is no doubt, however, that cases may show marked improvement in a few months by increasing in weight, and by the cessation of attacks of palpitation and other nervous symptoms.

The toleration of the Graves's disease patient for this drug is remarkable. F. C. Shattuck tells us "the more pronounced the case, the more of the drug it will stand." Marked cases may take 20 grains a day for a long time without ill effects. One of the author's cases taking the above dose, had, she claims, a few years ago a pronounced idiosyncrasy for Quinine. Of three marked cases under observation all began with a 5-grain gelatine coated pill of the Neutral Bromide of Quinine, morning and evening: two of the patients are taking 20 grains a day, the other 15 grains; none complain of symptoms of cinchonism. One patient under treatment for thirteen months has increased in weight, the nervous symptoms have largely disappeared, a troublesome diarrhoea has improved, and the goitre and exophthalmos are much less noticeable. All the cases show a decided gain in strength, and report considerable improvement.

THE ABUSE OF THE CYSTOSCOPE IN PROSTATIC DISEASE.

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THE usefulness of the cystoscope in the diagnosis and treatment of endo-vesical disease is so firmly established as to be beyond controversy. With the advent of this instrument, however, in the hands of specialists the selection of whose field of labor was primary rather than secondary, and whose experience both in general medicine and the special field in which they are engaged has been limited, much of what may fairly be termed malpractice has resulted. It is safe to assert primarily that expertness in the use of the cystoscope is difficult to obtain without constant practice upon cases, in the majority of which no indications for the use of the cystoscope exist. The absolute necessity of this practice is its condonation. That the use of the instrument should be extended to cases in which its employment not only can have no practical results, but in which it is absolutely injurious and often dangerous to the life of the patient, I most emphatically deny.

Nowhere in the entire field of genito-urinary surgery has the use of the cystoscope been so abused through routinism, a lack of discrimination in its employment, and absolute disregard of the rights and welfare of the suffering as in the diagnosis of prostatic disease. I have repeatedly inveighed against the use of the cystoscope for diagnostic purposes in the large majority of cases of prostatic obstruction. I note with great satisfaction that Dr. Parker Syms is thoroughly in accord with my previously expressed opinions upon this subject. He says: "I cannot speak too strongly against the employment of the cystoscope in these cases. I regard a cystoscopic examination of a prostatic patient who is suffering from more or less severe cystitis as a thoroughly unwarranted procedure, which is far more dangerous than a properly performed removal of the prostate through the perineum."

At this writing I am prepared to go even further than either I myself or Dr. Syms have thus far gone in the condemnation of the indiscriminate use of the cystoscope in prostatic disease. I unhesitatingly state it is my opinion that in by far the majority of cases of prostatic obstruction the use of the cystoscope is reprehensible, whether severe cystitis exists or not. It is imperative at this juncture to inquire, first, into the possible advantages to be gained by the use of the cystoscope; second, its dangers.

In nearly all of the cases of prostatic obstruction which present themselves to the surgeon, the diagnosis is practically established before any physical examination whatever is made. The age of the patient and his clinical history are usually sufficient to suggest to the mind of the practical surgeon the probable nature of the case. The patient's age and history will at least suggest the existence of an obstruction of some kind, the character and form of which are subsequently to be determined by physical examination. The simple passage of a catheter for the purpose of measuring the length, and in a general way determining the form of the urethra, especially as to its posterior or deep portion, associated with digital palpation of the gland and its adnexa via the rectum, establish the diagnosis of the condition present beyond peradventure of doubt in nearly all of the cases that come under our observation.

The condition of the urine and the history of the case establish the existence or non-existence of cystitis of

sufficient moment to be worthy of special consideration. The amount and character of the residual urine may be established by catheterization. These measures of examination and exploration are perfectly safe,—as safe as they are reliable. What more can be accomplished by the use of the cystoscope? So far as I can determine, nothing more than the gratification of the curiosity of the operator as to the form and general arrangement of any part of the obstructing prostatic tissue which may project into the bladder, and the existence of a secondary calculus.

In the light of our present knowledge regarding the indications for and technique of radical operations upon the prostate, such a cystoscopic study of the case would be superfluous were there no other objections to be urged against it. There are, however, several objections to be urged. First, the shape of the cystoscope is such that it cannot be introduced into the bladder through a narrowed and distorted prostatic urethra without the production of considerable traumatism. Having been introduced into the bladder, prolonged manipulations are frequently necessary in order to make a thorough study of the interior conditions. The introduction of the cystoscope and the subsequent manipulations are likely to be exceedingly painful, so painful that an anesthetic is demanded. I have long claimed that the manipulations alone, to say nothing of the anesthetic, were far more dangerous than a proper radical operation for the removal of the enlarged prostate. Leaving the danger of manipulations out of consideration, there is a certain element of danger in the anesthetic. The danger of anesthesia is the principal risk that is run in the radical operation. Is it wise to incur this risk where no possible benefit can be conferred upon the patient, and where a radical operation is rendered none the less necessary by a cystoscopic exploration, be it ever so thorough and scientific?

Every unnecessary manipulation, and every unnecessary administration of anesthetics compounds the danger to the prostate. There is not only the immediate danger of the manipulations and anesthesia, but enhancement of the dangers of the radical operation, that must inevitably be undertaken sooner or later. I unhesitatingly affirm that men are dying in this country at the present moment as a consequence of the routine application of the cystoscope to genito-urinary work. In my own experience I have met with a number of cases in which the patient, in my opinion, lost his life as a consequence of cystoscopic enthusiasm.

As an illustration of the absurdity of the cystoscopic study of such cases of prostatic disease, the following is a fair illustration: I was called in consultation to see a man, fifty years of age, who had had an attack of retention for several weeks. Frequent catheterization was necessary. The introduction of the instrument was attended by considerable pain, and followed by more or less bleeding on each occasion. The frequent catheterization, possibly with a superadded infection, had resulted in a subacute cystitis. I was asked to immediately make a cystoscopic examination. On examination by the rectum, I found the prostate considerably enlarged and extremely tender. The history showed prostatic obstruction of a moderate degree, extending over some months. Acute prostatic congestion, with consequent retention, had occurred. The rest of the symptoms were explicable by the traumatism necessitated by the frequent use of the catheter. I could see no possible excuse for cystoscoping this patient, and consequently refused to do so. A few days later further ad-

vice was sought, and a thorough cystoscopic examination made. As a consequence, acute inflammation of the bladder was lighted up, followed by an extension to the pelvis of the kidneys, and the patient finally died of a condition which primarily could have been readily relieved by a radical operation, and which, even at the time I first saw him, was by no means irremediable, as careful palliative treatment followed by radical operation would undoubtedly have saved his life.

The foregoing case is but a type of many that have come under my observation. It is, of course, admitted that certain cases arise in which the cystoscope is absolutely indispensable. There are certain posterior median enlargements and prostatic overgrowths jutting into the cavity of the bladder, in which the use of the cystoscope is essential to establish the diagnosis. Even in some of these, however, the indications for operation are so plain that the form and character of the obstruction to the urinary way are of little moment as compared with the danger of a prolonged cystoscopic exploration. It must be acknowledged, however, that in these particular cases, *i.e.*, those in which the enlargement is in the direction of the cavity of the bladder, and the prostate proper is little, if at all, enlarged, the traumatism incidental to the introduction of the cystoscope is not so great as in the orthodox cases of prostatic obstruction.

Where the symptoms of prostatic obstruction are apparently typical and the catheter demonstrates a marked increase in the length and a change in the form of the prostatic urethra, with the presence of residual urine, the cystoscope, even in some of the exceptional cases, is unnecessary, and unequivocally dangerous.

The conclusions which I have formulated regarding the use of the cystoscope are as follows:

1. That when the diagnosis of prostatic obstruction is clear, the indication for radical operation is also clear, the application of this statement being modified only by the conditions governing the individual case.
2. Any exploration of the bladder which is unnecessary to the establishment of a practical working diagnosis is not only useless, but exceedingly dangerous.
3. Cystoscopy is especially dangerous, and where not absolutely necessary, is especially to be avoided because of the traumatism, and subsequent danger of infection which the insertion of the instrument necessitates, and the frequent necessity of anesthesia with prolonged exploration of the bladder.
4. The use of the cystoscope, especially when anesthesia is employed, rapidly compounds the immediate danger to the patient, and the subsequent danger of operative procedures.
5. A properly performed radical operation is much less dangerous than a cystoscopic exploration.
6. The use of the cystoscope rarely accomplishes more than the gratification of the curiosity of the operator in the establishment of refinements of diagnosis.
7. So far as the diagnosis of stone is concerned, the use of the cystoscope is superfluous. Whether the presence of stone be established or not, a radical operation for the removal of the prostate is necessary. The stone can be removed at the same time.
8. There are exceptional cases of posterior median obstruction and of prostatic overgrowths at the neck of the bladder in which the cystoscope is necessary. These cases are safer for exploration than the orthodox type of prostatic obstruction, but even in them diagnosis can usually be established without the cystoscope, and where this can be done the use of that instrument should be avoided.

SOME PRACTICAL METHODS OF HYDROTHERAPY FOR GENERAL PRACTICE.

BY ELIOT GORTON, M.D., FAIR OAKS SANATORIUM, SUMMIT, N. J.

IN presenting some of the simple, though effective, measures of hydrotherapy, it is my aim to overcome in some degree the apathy and prejudice of the general practitioner toward a subject which merits a larger share of his attention.

The progressive work of such men as Winternitz, in Vienna, and Baruch, in New York, has rescued hydrotherapy from the domain of quackery and placed it upon a sound physiologic and scientific basis beyond the realm of empiricism, and it is largely to these men and their pupils that we owe our present knowledge of the rational application of water to diseased conditions. Correct technique is absolutely essential to good results, and it is the absence of technique—the inattention to the necessary details—which is responsible for the lack of confidence in and the feeling of indifference toward hydrotherapy, so prevalent among the profession.

In this era of progressive medicine it is astonishing that the skin, the largest and most accessible organ of the body, should be so much neglected in therapeutics. Ramified by miles of capillaries and arterioles, the calibre and tone of which are readily influenced; with millions of minute excretory organs, the efficiency and activity of which are easily affected; with myriads of nerve endings directly accessible, we have in the skin an organ through which we are enabled to directly and powerfully influence the blood and lymph vessels, the excretory and the nervous systems. The flexibility and range of hydrotherapy are so great that good results may be obtained from the simpler procedures which require no complicated apparatus. In the various forms of baths, the effect desired must not be lost sight of. It is just as necessary in hydrotherapy to individualize the patient as in other medical measures, and our use of any prescribed form of bath must be governed as much by the condition of our patient as the effect desired.

In hydrotherapy we are using four agents—moisture, temperature, friction and mechanical force, and it is the manner of using and combining these elements which constitutes its entire art. The better and more elaborate the apparatus, the more exact, of course, can we make our prescription in a given case, but the point I wish to emphasize is that with simple fixtures and with no special apparatus at all, a great deal of satisfactory work can be accomplished. The only absolute essentials are water and a bath tub. With these, a bath thermometer and proper technique, good results can be obtained.

It seems to be an accepted conclusion among most medical men that the chief aim of the cold bath is to reduce temperature and should only be used, if at all, in cases of fever, and that all baths have for their object the modification of temperature. Many, for instance, think the sole object of the Brand bath in typhoid is to lower the temperature, when, as a matter of fact, the chief and important effect is its soothing and calmative effect upon the nervous system. Baruch says: "Temperature reduction is perhaps the least potent factor in the therapeutic effects to be expected from the application of water," and "the long prevalent idea that in its capacity of reducing temperature lies the chief strength of hydrotherapy is fallacious."

The limited time at my disposal prohibits the presentation of clinical data in support of statements to be

made, but I propose to direct your attention to a few practical, yet simple, hydrotherapeutic measures, and to point out some of the conditions where they are a most valuable adjunct to other forms of treatment. Let us consider first the technique and therapeutic purpose of the so-called warm full bath. In this bath the entire body, except the head, is covered with water. The tub is filled three-quarters full, at a temperature of 98° to 102°, and should be kept at that temperature. The head should first be bathed with cold water and wrapped in a towel wrung out of cold water preparatory to all hydrotherapeutic measures. This is an important point in the technique which is often overlooked. The patient lies in the bath without effort, and is left undisturbed for fifteen minutes; or, in some cases, gentle friction over the body by an attendant may be employed. This bath has a marked sedative action, and is very useful in cases of insomnia and delirium, for reducing temperature, for relieving pain, and to quiet nervous irritability. When used for insomnia, delirium, or temperature reduction, friction when in the water and active towel rubbing after emerging from the tub should be omitted. The capillaries are dilated and the internal blood pressure is much reduced. Respirations become slower and are at first shallow, but later are full, except the bath be too prolonged. The pulse is first slowed and then increased in frequency. When prolonged, and it should be of at least twenty minutes' duration in insomnia, the temperature rises, but returns to normal in half an hour. On leaving the bath the perspiration should be abundant, and herein lies one of its chief virtues in the treatment of kidney diseases. Should palpitation of the heart or a sense of great heat occur, it should be stopped. Baelz, of Tokio, has demonstrated that the former teaching that colds are easily contracted after the hot bath is erroneous, for the reason that the paralysis of the cutaneous vessels lasts some time and prevents their contraction when exposed to cold. In patients suffering from heart disease the temperature of this bath should never exceed 95°.

The Half-Bath.—The half-bath is by far the most important of the more simple measures, because of its great range for modification to meet existing conditions, and its ease of administration. It contains all the elements of hydrotherapy—moisture, temperature, friction and force. The technique is as follows:

The head is first wrapped in a towel wet with cold water, a warm drink is given, and the patient, after complete immersion, sits forward in the tub, which is less than half full of water at a temperature of 90°. With a two-quart dipper the attendant throws water dipped from the tub with some force against the back and upper extremities, and at the same time the patient rubs his abdomen and chest. This procedure is maintained for one and one-half minutes. The patient then sits back in the tub, and the water is thrown against his chest for the same length of time. The attendant then rubs the back, chest, arms and legs briskly for about one minute. The temperature of the water is then reduced from three to five degrees, and the water-throwing process repeated, after which the patient is rubbed dry. As he becomes accustomed to repeated baths the water at the start may be slightly reduced in temperature from day to day, and a difference in temperature of 5° maintained between the two stages, but the water should never be reduced below 68°. If in

doubt as to the proper temperature with which to begin, it is a safe rule that the bath may be started with water 10° to 12° below the body temperature of the patient. Its average duration is six minutes.

The effect of the half-bath depends upon the way it is administered. The first effect, however, is stimulative, from the splashing, and the subsequent reaction is brought about by the rubbing and the splashing with colder water. Cold baths of short duration, with brisk rubbing, give greater stimulation, while warmer baths with longer duration have a sedative action. In diseases of the central nervous system it must be given warmer, with a range of temperature from 90° to 80°. It is then a valuable agent for the relief of the lancinating pains of tabes dorsalis. In the aged, the first temperature of the bath must be about 95°. In tuberculosis its effect is most marked. Its daily use, six minutes in duration, beginning at 85° and ending with water at a temperature of 80°, lessens the distressing cough, improves respiration and the vascular tone, increases the appetite and retards general wasting. Another disease in which this bath is indispensable is epilepsy. You are familiar with cases of this disease in which the prolonged administration of bromides has produced an unsightly and disagreeable acne necessitating their discontinuance. In this condition, the rapidity with which the skin clears up and the breath becomes sweet is remarkable, and a greater tolerance is also established for the bromides. The bath is quite as important where bromides are administered for any length of time as the bromides themselves. In neurasthenia and hysterical conditions it may also be used with great benefit, for the tonic effect upon the nervous system. In chronic gastro-intestinal complications, particularly cases of chronic gastritis and enteritis, this bath, followed by the pouring of water upon the abdomen from a pail held at a height of four feet, and repeated three to six times, often effects marked improvement. This is the "thermic massage" of Winternitz.

The half-bath can be used with or without the hot-air cabinet, but when the latter is used it must precede the bath. All patients will shiver when first entering the tub, but this ceases in a few minutes when reaction begins. When properly administered, the skin is reddened, and the after-effect is a pleasurable one of warmth and well-being. The effect of the half-bath is that of a general tonic. It is a stimulative, refreshing measure, and is only contraindicated by chill, a state of collapse, or any condition of extreme weakness where the giving of any bath would be hazardous.

Wet Packs.—The wet packs, hot and cold, are other simple measures of great value. These must also be given with rigid adherence to technique, else they are of no value. The unfavorable results so often obtained from their use in private practice are often chargeable to the lack of knowledge of the proper technique on the part of the nurse.

The cold pack is the one most in vogue, and is used in fevers for its antipyretic effect, and is especially valuable in cases with high pulse rate. In diphtheria and angina the renewed cold pack, according to Winternitz, is almost a specific, and in functional motor neuroses, chorea, athetosis, neuralgia, goitre, palpitation of the heart, kidney disease and diabetes—in fact, in any condition where a marked diaphoretic action is desired, it is invaluable. As a sleep-producing agent it has no equal, and distressing cases of insomnia, where

the ordinary hypnotics have been of no avail, are often relieved absolutely by the cold pack. In cases of extreme weakness and in heart disease it is usually contraindicated, and if used, must be given with great caution. In maniacal conditions and in states of delirium the sedative effect of a prolonged cold pack is very marked, and these patients often go to sleep while in the pack. The motor restlessness is greatly relieved, the patients become quiet, and sleep is soon induced. In nephritis the hot pack is preferable. In neurasthenia, hysteria and all functional neuroses, the cold pack is highly commended. The temperature of the cold pack is from 70° to 60°, and the hot pack 100°. They are given in the following manner:

Three woollen blankets are placed upon the bed. A coarse linen sheet wrung out of water at the desired temperature is placed over the blankets. The head is wet and encircled with a cold compress. The patient then assumes the recumbent position upon the sheet, with the arms over the head. One edge of the sheet is placed at the side in line with the axilla, and the sheet is then brought around to the front of the body. The arms are then placed at the sides, and the sheet is carried around so as to envelop the arms and shoulders. It is then pressed between the limbs, and in this way every part of the body is covered and no two points of skin are in contact. The sheet must come closely around the neck above the shoulders, and the feet must also be well wrapped, each one separately. It is very important that the sheet comes into contact with every part of the body, and that no two skin surfaces are in apposition. The blankets are then wrapped around the sheet in the same manner and brought snugly around the neck. It is absolutely essential that all air be excluded, and if the blankets do not come snugly around the neck, the patient will experience much discomfort. When properly applied there is no discomfort after the first shiver from the cold sheet. The duration of this pack should never be less than one-half hour, and from that to two hours, or longer, depending upon the effect desired. During the pack, drinking water should be given freely, and while in the pack the patient should never be left alone. When practicable, it is customary to follow all packs with the cold rain bath of five seconds' duration, and this again by brisk rubbing.

Let me recapitulate the salient points in the technique of the pack: (1) Head wrapped in a towel wrung out of cold water. (2) Sheet wrapped so that no two skin surfaces are in contact. (3) Blankets wrapped closely around neck, so that all air ingress is absolutely excluded. (4) Drinking water to be given freely. (5) Duration not less than one-half hour. (6) Constant attendance.

Drip Sheet.—Another simple measure largely used for its tonic effect is the drip sheet. This is usually given on rising in the morning, and its technique differs from that of the cold rub only in that the sheet is not wrung out. It is taken dripping from the water at a temperature of 70°, and wrapped around the patient in the same manner as in the pack, the patient standing and the attendant applying rapid friction over all parts of the body through the sheet, until the patient is thoroughly warm. During the rubbing process a pitcher of water 10° cooler may be poured over the head and shoulders. The drip sheet is useful in neurasthenia, states of depression and nervous conditions generally where a stimulating and tonic effect is desired.

The baths and packs used in the treatment of typhoid need no comment. That hydrotherapy has been one of the chief agents in the reduction of the mortality from this disease is now generally conceded. However, during the past few years there has been a gradual extension of the field of hydrotherapy to allied conditions, and this agent is now recognized, especially on the continent of Europe, as an adjunct of the first rank in the treatment of the acute gastro-intestinal conditions of infancy and childhood. This is especially true of the more severe conditions accompanied by high temperature and marked diarrhoea, with frequent watery discharges. In these cases, the administration of the cold pack two or three times daily, if necessary, depending upon the temperature of the patient, is very efficacious. In fact, in the estimation of some the routine treatment of these cases after this manner deserves the same consideration that similar procedures command in typhoid. It is certain that this is a valuable adjunct to other modes of treatment in allaying the irritability, reducing the temperature and lessening the discharges of the violent summer diarrhoeas of children. The technique is the same as for adults except that the duration of the pack should be from fifteen to twenty minutes. The use of this form of bath treatment in the pneumonias of childhood has many warm advocates abroad, but has received only little support here. I have had no experience with it, but the high authorities who actively advocate its use in these conditions make it worthy of our serious attention.

Habits and Diet of the Japanese Soldier.—It is a remarkable circumstance, says the *Medical Record*, that the Japanese troops in the field have not been attacked by an epidemic of typhoid fever, cholera, or plague, considering the conditions under which they live. The Japanese soldiers are crowded into the houses of the country, which are small and ill-ventilated. The Koreans and Manchurians know nothing of sanitation, and care less, and it is certain that if Caucasian troops had undergone an ordeal similar to that to which the Japanese soldiers have been subjected during the past few months, a pestilential epidemic would have been the result, and deaths would have occurred by the thousand. The Manchuria correspondent of *Leslie's Weekly* thinks that the Japanese are less susceptible to the attacks of disease germs than are Caucasians, but is of the opinion that there are other reasons which explain their freedom from disease. To begin with, their diet is extremely plain and simple, consisting chiefly of rice, salt fish and unsweetened tea. Other civilized armies, on the contrary, when on active service, eat highly concentrated and heating foods. They drink large quantities of strong coffee, and gorge themselves with hard-tack, bacon, canned beef and jam, bringing on a whole train of stomachic and intestinal troubles and lowering the system generally. The men thereby lay themselves open to the danger of contracting various diseases. Again, the Japanese soldier always drinks boiled water or a very weak concoction of plain hot green tea. Unlike American and British soldiers, upon taking possession of a town, the Japanese fighting man does not proceed to drink to excess; he is temperate to a degree, and indulges in no stimulant but his mildly alcoholic saké. Thus, by careful diet, his body is in good physical condition and fitted to resist the onslaughts of disease.

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Men walk as prophecies of the next age. Step by step we scale this mysterious ladder; the steps are actions; the new prospect is power.—EMERSON.

ETHICS OF THE PROFESSION.

IN presenting our readers the compliments of the season, we want to take the opportunity to thank them for their generous support in the past, and to ask a continuance of their good offices in the future.

If we have been able to show any one how to do better and to avoid harm, perhaps we ought to feel satisfied, for this is what the true physician is anxious to know.

As we glance along the line, we feel like congratulating the profession upon the advances that have been made in our Science and Art, during the last year. This is an era of discovery and progress which promises wonderful possibilities for the future through continued strenuous effort.

The first duty of the physician is no doubt to heal the sick, but not necessarily with drugs. It is only requisite some times to ascertain and remove the cause of disease, allowing nature to do the rest without the interference of drugs, and when possible it is the better practice. Some remarkable recoveries have occurred from simple changes in diet, or habits of life, without drugs at all, but still there is a large field for improvement and hopefulness along therapeutic lines.

The general practitioner must point out the possibilities and limit of the laboratory, indicate when it should come to the aid of the clinician and not allow his patients to drift out of his hands into the laboratory. He must remain in charge; the laboratory is his adjunct. The laboratory is one of the specialties which is permanent and the family physician must appreciate the fact and use the service it offers. The laboratory-worker, if not a clinician, should decline the care of patients, but should co-operate with the attending physician. On the other hand, the clinician,

if not familiar with or has not the time at his disposal for laboratory investigation, must invoke the aid of such a practitioner in the interest of his patient. It goes without saying in these days, that the clinician and the laboratory-worker must go hand in hand and no intelligent practice can be had otherwise.

The relation of our profession to the public health, always important, was never so great as now. The result of its work is apparent in the immunity from disease and the decreasing death-rate. The fact is that the conscientious physician must cut off his means of support by contributing from his professional knowledge of disease as no other profession is expected to do, without compensation.

No class of men do so much work for which they receive no direct recompense in money, as the physician; it seems to be a duty that cannot be avoided. It shows at least a humanitarian aspect that might be emulated in other circles.

There is one point as to the duty of physicians to each other, which demands a word of condemnation, especially as it is on the increase. It is the evil of duplicating papers one has been paid to write in behalf of proprietary articles. No reader wants to see the same article in more than one journal, and it is an injury to the writer of the article and to the magazine that publishes it, when this happens. It is bad enough to be importuned by the owners of these products to print such effusions, but it is far worse when they are offered as original by their deceptive authors. The practice is not likely to be repeated by the same individual, and deserves the denunciation of the profession-at-large as well as the journals themselves.

As a profession, we ought to be always on our guard against fads and secret nostrums, both of which are constantly in evidence. Physicians are often annoyed by the promoters of proprietary articles after obtaining their endorsement, advertising directly to the public. The only way is to decline certification of everything. It is derogatory to the profession to use it for commercial purposes and it is the duty of each individual member to help put a stop to it by declining to be a party. There is danger in accepting unknown or untried drugs from any source, and we should not allow them to be forced upon us.

If the profession would ascertain the analysis of quack remedies which are sold to the public, acquaint their patients and others as to their qualities, much good might be done. Many of these, as is well known, contain alcohol in large quantities, and some of them dangerous drugs. No higher duty rests upon the profession than the exposure of these frauds. Some united action in respect to this subject would result in great good to the community physically and financially.

A terrible menace to the integrity of our profession

is the commercial spirit which is so all-pervading and so far-reaching. It is seen in the methods employed in promoting practice, in the acceptance of bribes for various purposes, and the illegitimate working-up of cases beyond the province of necessity. The practice of accepting commissions on prescriptions, we are told, is enormous, and should be frowned upon. There are schemes constantly being worked to tempt the unwary, some remarkable instances of which have come to our notice. These wily deceivers will work the busy practitioner who has not time to investigate, and before he knows it, he has been duped.

Our advice is to have nothing to do with any doubtful propositions whatever.

The "booming" of individuals or things, beyond legitimate value, should not be countenanced in any profession. It belongs in the domain of trade, where deception is expected to be found. Appeals on sentimental, upon pecuniary or upon the grounds of friendship, have no place in the field of Science, where everything must stand upon merit!

There is much in the situation that is hopeful and a great deal to criticise. On the whole, the outlook for rectitude in the profession is encouraging, but we must be constantly on the *qui vive* lest we meet the tempter in some unexpected guise and quarter, where we can be taken at a disadvantage and before we know it we are lost!

There is no time like the present in which to make good resolutions, and there is no time when one is so likely to do it as at the beginning of a new year.

THE RELATION OF THE DOCTOR TO THE STATE.

THE doctor should have the clearest conception of right and wrong of any man in the American community, clearer than the minister or the lawyer, because he can see more distinctly that the sins of youth must bear fruit in old age. He knows more fully than any one else that the sins of the fathers, not merely venereal in character, but of all sorts and varieties, are visited upon the children, even of the third and fourth generation. So he should see more clearly that political fraud and general civic demoralization must result in the deterioration of public health and morality. And yet the practising physician as a rule is content to go his way, minding, as he puts it, his own business, and beyond an occasional criticism, he is without power or influence in the body politic.

Undoubtedly there are two reasons why the American physician is so inert in the affairs of his community. First, the fear of offending powerful citizens, or profitable patients may deter him, but to the credit of the American doctor we can say that generally it is the second reason that holds him, the fear that the public do not want a doctor to "mix in politics." Never was

there a graver mistake committed; it is the duty of the doctor to mix in politics as far as questions of public honesty and morality are concerned. Roberts, in a recent address before the American Academy of Medicine, has taken up this subject energetically. Himself the type of the man he preaches and describes he has made an honest effort to correct the evils of his own town and ward. As he states epigrammatically there is no better way to remedy evils than to recognize their existence, and the superior training of doctors of medicine, their unusual opportunities to know the needs of a community, their many chances to play the part of missionaries, and their personal influence with active men make their responsibility to the state great.

There are many ways in which a physician can serve the state; he should work for pure drinking water, the development of active means to prevent the spread of contagious diseases; he should declare for state hygiene and city purity; he should fight bad men in office, for he knows their power of doing harm. Not only to the state as such should the doctor be honest, but he should teach honesty to his patients. How often are physicians summoned in jury trials with the expectation of testifying thus and so! How many cases drag their weary way through the courts depending on medical testimony to bolster up some unjust claim! The average doctor will not do such work himself, but he should fight it in others; the doctor ready to appear with ready made testimony in any case should be ostracized by his fellow-practitioners.

Again Americans worship success; money making and money having seem to cover a multitude of faults and sins. We are all too prone to accept the successful man, no matter what his methods. Physicians, by demanding public honesty and decency, can counteract this universal tendency among business men. In his own profession the doctor can discourage dishonesty; he can cultivate a sense of honor among his patients and fellow-practitioners almost beyond belief. He can discountenance dishonest specialism; he can reject secret nostrums, unscientific methods and careless habits. In a word, the doctor can become the best and most powerful representative of the state if he will but try.

THE SIMPLE LIFE.

NO one was more surprised than the simple-minded peasant preacher, Charles Wagner, at the success of his treatise on "The Simple Life" in America. Containing no original or striking thought, written in a homely way, it does not exemplify the simple life as fully as is done by Thoreau and Whitman, our own countrymen. Yet there has been ample reason for the success of Pastor Wagner's book; first, it was praised by President Roosevelt, and generally advertised during election times; secondly, Mr. Wagner's

visit was heralded in the papers, bringing him to the notice of people who do not read, and thirdly, and principally it strikes twelve in the present history of our nation. We are all advised to be strenuous; magazines now devote themselves to success, to system, to every fad under the sun until the brain of the American reels under the pressure, and his muscles are all aquiver.

It is not necessary to preach the doctrine of the simple life to the physician; his patients will unconsciously preach it to him every day. At one house it is the overworked father who, having been successful, is trying to keep up with the procession of richer neighbors, and he expects the armamentarium of the doctor to drive away sleepless nights and the demon of worry. Again it is the young girl, whose "coming out" is so heralded in the press and society. She, too, is burning the candle at both ends, and she, too, expects the patient doctor to rebuild the walls she has torn down, with a few pellets and some stupid advice about going to bed early, eating regularly, and other irrelevant matters.

The simple life is after all, as Wagner emphasizes, a state of mind. Wagner clearly says "a man leads the simple life when his highest desire consists in wishing to be that which he should be; that is to say, a true and honest man." The ordinary world has jumped to the conclusion that the simple life consists of oatmeal, homespun clothes, and noonday dinners; nothing is farther from the truth. The rich man living in apparent luxury may lead a far simpler life than the day laborer working on his roads. It means the creating of the home spirit, the use of honesty in education, in beauty, in habits, in ideals, in business, and in religion. When this happy ideal is reached, the physician, the lawyer, and the minister, the professional soothers of trouble, physical, social and eternal, will have far less to do. No one has expressed the essence of the simple life better than was done by David Swing, the Chicago evangelist: "Let us learn to be content with what we have. Let us get rid of our false estimates, set up the higher ideals—a quiet home; vines of our own planting; a few books full of the inspiration of genius; a few friends worthy of being loved, and able to love us in turn; a hundred innocent pleasures that bring no pain or sorrow; a devotion to the right that will never swerve; a simple religion empty of all bigotry, full of trust and hope and love, and to such a philosophy this world will give up all the empty joy it has."

Gas from cocoanut oil has been adopted by the Philippine officials owing to Oriental coals being expensive and deficient in gas-producing qualities. The oil is fed slowly into strong cast iron retorts after the latter are brought to a red heat. This produces a high quality of illuminating gas quite free from smoke and tar.

THE NEW PHARMACOPEIA.

THERE met in Brussels in the summer of 1902 an important congress of physicians and pharmacists. America was represented by Dr. Horatio C. Wood and Dr. Frederick B. Power, each delegate from each country being appointed by the respective governments. The work of the congress was important, the idea being to frame an international pharmacopeia of patent remedies. The development of this congress was slow, the suggestion assuming shape in 1893 at the Seventh International Pharmaceutical Congress, which met that year in Chicago, during the period of the World's Fair. It was a wise move to exclude all medicinal substances, for each nation has its individual drugs, and it would be difficult to displace or supplant these.

The United States Pharmacopeia will be the first national authority to recognize the standards set by this congress. Professor Remington, the able chairman of the Committee of Revision, read a report on this subject before the section on pharmacology at the recent meeting of the American Medical Association; this report was published in the *Journal of the American Medical Association*, published December 3, 1904. This eminent authority states that he has received many letters of inquiry on the subject, and his paper is a résumé of the subject.

The present state of the pharmacopeia is confusing to say the least, and the Committee of Revision has had its trials and problems. Especially has this been true in regard to the newer synthetics. No sooner does a physician begin to use one new drug than he is importuned to discard it and try a later one. The procession is interminable and grows in size as it passes the reviewing stand.

The pharmacopeia of 1890 was found to be too rigorous, and hypercritical in actual practice. There is no necessity for ordering chemical salts to be microscopically or analytically free from harmless substances, if such amounts are known and allowed for; on the part of the manufacturer it grew to be a serious problem, for it increased the cost of production often over one hundred per cent. Chemical tests are now very precise, and can be used with entire safety to patient and practitioner. So the committee has established the principle that it is better to introduce standards which can be easily attained, and then look to the law to prosecute offenders. Thus boric acid must be 99.8 per cent. pure, which does not prohibit the manufacturer from making it of one hundred per cent. purity, but does prevent boric acid of ninety per cent. grade being used in medicine. Again a clearcut distinction will be made between drugs used commercially and medicinally. The present standard bears hard on the manufacturer of drugs used in the arts and commerce.

Taking arsenic as a type the new rules require that

every official arsenical solution throughout the world shall have the strength of one per cent. Ten per cent. is the standard for tincture of opium, five per cent. of ferrous iodide in the syrup of the iodide of iron. Ten and twenty per cent. tinctures will be required, ten per cent. for patent drugs, twenty for weaker. This will cut down the strength of many tinctures, such as the tincture of aconite.

The alteration in nomenclature will not be great; but serious errors will be corrected, such as the term carbolic acid. This drug is not an acid at all, but a phenol, "carbolic acid" will be used as a synonym for the present, but the up-to-date title will be "phenol." The committee, however, advise the rejection of all synonyms in prescription writing, such as "cold cream," "laudanum," "paregoric," "Goulard's cerate," etc.

In the synthetics, the definite chemical name will be used, rather than the titles given by manufacturers. This will be a little hard at first, but the physician must rise to the improvement. Again for the first time the average dose is given, not the maximum one, however, as this varies greatly under different circumstances.

Three months will be allowed after the publication of the pharmacopeia before these improvements will go into effect in order to allow physicians, druggists and manufacturers to prepare for them.

DR. WILEY'S RESEARCHES CONCERNING BORAX.

DR. H. W. WILEY, chief of the Bureau of Chemistry of the Department of Agriculture, has been making exhaustive experiments for the purpose of determining the relation of borax, as a food preservative, to digestion and health. These experiments he lately explained in a delightful and interesting address before the New York Academy of Medicine. A series just completed, were made upon a select volunteer band of twelve young men, most of them connected with the Department of Agriculture, who were under observation, and the hygienic table prepared under Dr. Wiley's direction, for periods of from thirty to seventy days. They continued their usual vocations and regular tenor of life during these periods, but signed a pledge agreeing to follow implicitly the rules and regulations governing the table, and to use no other food and drink than that provided, with the exception of water. Carefully selected food was provided—fresh meat, eggs, dairy products, vegetables, and fruits of the season. When preserved food was used, it had either been kept in cold storage, as the meat and poultry, or had been subjected to sterilization, thus assuring food free from chemical preservatives. The experimental preservative was used both in the form of borax and boric acid; beginning with small quantities, about as much as would be consumed in foods preserved with borax, such as butter and meat, the quantities were

progressively increased for the purpose of reaching, if possible, the limit of toleration of the preservative by each individual. Each man's rations were carefully weighed or measured and analyzed, and the excreta were collected and analyzed. And the men were periodically examined by a physician deputed for that purpose, and their pulse and temperature taken before and after dinner each day.

The tabulating, classifying and interpreting of all the data collected was an immense work. The results include the study of the ratio of food consumed to the body weight; the influence of the preservative upon the weight of the body, upon the metabolism of nitrogen, upon the oxidation of the combustible matter in the food, upon the kidneys; and much other matter of interest chiefly to the specialist. All of these data may be found in the circular which has lately been sent out by the Bureau of Chemistry. We may here note briefly the findings in regard to the effect of boric acid and borax upon the general health.

Dr. Wiley has found that boric acid in quantities of 4-5 grams a day, continued for some time, results in most cases in loss of appetite and inability to perform work of any kind. Four grams per day are the limit of exhibition beyond which no normal man may go. A majority of normal men can take three grams per day for a somewhat protracted period, and still perform their duties; from this dose, however, injurious doses are commonly felt, and it is certain the normal man could not long continue to receive three grams per day. One-half gram per day for 50 days produced in some instances somewhat unfavorable effects, so that it would seem that while this amount can be taken for a limited period of time without much impairment of health, its protracted use would not be safe. A person eating butter and meat, both treated with boric acid as a preservative, would receive, perhaps, as much as one-half gram per day. A dietary composed solely of such foods might, in the course of some weeks, cause much disturbance. There would seem to be particular danger of renal injury from the boric acid in its elimination, for about 80 per cent. of the boric acid escapes in the urine. The remainder is excreted in the sweat. Oddly enough, almost none is found in the feces.

Dr. Wiley wisely concluded with these observations: That boric acid and equivalent amounts of borax in certain quantities should be restricted to those cases where the necessity therefor is clearly manifest, and where it is demonstrable that other methods of food preservative are not applicable; that without the use of such a preservative the deleterious effects produced by the foods themselves, by reason of decomposition, would be far greater than could possibly come from the use of the preservative in minimum quantities. In these cases it would also follow, apparently, as a matter

of public information, and especially for the protection of the young, the sick and the debilitated, that each article of food should be plainly labeled and branded in regard to the character and quantity of the preservative employed.

THE USE AND ABUSE OF ATHLETICS.

DR. R. E. COUGHLIN has written an exceedingly pertinent article with this title (*Medical Record*, September 24, 1904). He finds that athletics may be for good or for evil. In moderation, and where there is no overstraining, nothing but good can result. And there is one very positive advantage in them which is not often considered. The mental tone of the young man who exercises well is kept healthy; and his psychic attitude toward sexual matters is likely to be normal. Those whose business it is to attend to the development of college men know the difficulty of preserving normal relations in this regard. In the period following shortly upon adolescence, when sexual impulses are at fever heat, the young man's mind, if it be not detracted, may move him to all sorts of irregular and detestable practices. But the young man who, after doing the right amount of studying, will take exercises to the degree of becoming healthily tired by bedtime, will be content to sleep with a clean imagination. This, we believe, is one of the reasons why college authorities favor the development of athletics among students.

Dr. Coughlin considers the prime object in athletics to be the improvement of the general health. However, to attain good health, muscle building is not a necessity. The size and hardness of muscles is not a sure indication. There are "muscle-bound" men who would hardly be considered healthy. Hypertrophied muscle has a tendency to degenerate; the heart, being a muscular organ, shares in this tendency. Health consists in a harmonious co-working of the various organs and tissues of the body, provided these are normal.

Dr. Coughlin considers there is no evidence to prove that athletics and muscle building improve the constitution; with the reservations stated we should think that they would. He sums up his subject with the statement that athletics are beneficial when properly and judiciously applied, and very injurious when obvious precautions, such as he details, are ignored or carelessly disregarded.

In this regard a comparison between football in English and American colleges is *apropos*. In England the game is played without roughness, maiming or slugging; and the presence of an audience is not essential. A stirring game will be played without a spectator, the joy of the sport being sufficient incentive to play. In other athletics, too, there is great activity. Every new arrival is visited by upper classmen, the particular variety of athletics he affects is inquired into, and he is

put in the best possible position, both for his own and his college's advantage, as regards his proclivities, be they for football, rowing, cricket, walking, and the like.

AIR, FOOD AND HEALTH.*

DR. RABAGLIATI, A.M., M.D., F.R.C.S., has written in a popular vein, a most interesting and important essay on the predisposing causes of disease. This work has been developed from a serial contribution to *The Scalpel*, which was intended originally for professional readers. However, when presented in book form it was eagerly read by thousands of the laity. A first and second edition was followed by a third, which the author rewrote and expanded in order to meet the requirements of public education.

A hypothesis expressed is that the surplus of lymph in the connective tissues is, more than the blood, the basis on which the great mass of disease is built. And the author's purpose is to simplify and clarify ideas on the subject of disease, so that humanity may, by wiser and saner habits of living, increase considerably its span of life, and what is better still, ward off in greater degree than is at present the case, calamity in the shape of serious sickness.

Preventive medicine is a distinctly modern concept of the physician's function. In accordance with this concept certain of Dr. Rabagliati's views are worthy of review. The predisposing causes of disease, he declares, are for the most part the relations of the body to air, to food and to exercises, with perhaps the influence of anxiety and heredity added. The etiological influence of the last of these, he considers, has been greatly exaggerated both by medical men and by the general public. Among the others the most important is by far the relation of the body to food. The author's basis may, in fact, be analyzed into the following statements: First, if human beings were to arrange properly the quantity and quality of the food which they take, and also the times at which they take it, they would suffer much less from disease than they do now. Second, even after disease has manifested itself, the best means to combat it and to restore the body to health is by an alteration in the diet. Thirdly, and consequently, that the best and most important means to keep a man in the health which, by the supposition, he has reattained, is to prescribe for him a proper amount and quality of food, and suitable times for taking it for the future. Concerning the three classic methods of treatment, by diet, by medicines, and by surgery, the author would observe that, with a few diseased conditions which must be treated by surgery, those diseases which cannot be treated by diet, or by diet combined with exercises, can hardly be efficiently treated at all. This latter view is, of course, open to

*Published by Wm. Wood & Co., New York.

considerable argument. However, the author does not contend that the only cause of disease is to be found in improper food or feeding. There are many other causes; but all these taken together seem to him of less consequence as accounting for disease and premature death than an improper relation between the needs of the body and food. Moderation in eating is his prime remedy, which he expresses as lying between twelve and twenty-four ounces of ordinary diet of wholesome quality a day, taken preferably at two meals eight hours or so apart." To establish the rectitude of this view, many facts are presented in an orderly and systematic arrangement.

Alcoholics are not at all recommended; but if they cannot be dispensed with only as much should be taken as would be represented by one small glass of whiskey twice a day. More than this transcends the bounds of moderation. He should not eat with the morning drink or the five-o'clock cocktail, or with the night cap. The habit of too frequent eating does an immense amount of damage by keeping up continual demands for work on the part of the digestive organs. "Frequent eating and frequent alcoholic drinking are two very bad things, but it is certainly more dangerous for a man or a woman to do both together than it is to do one alone."

The chapter on the feeding of children is surcharged with excellent and wise suggestions. Concerning cancer, the author believes that in proper attention to air, food and exercise will be found the best and most effective means of prevention; he does not, however, believe that any sure preventive of or specific cure for these dreadful growths will ever be found. He regards sarcoma simply as a connective-tissue cancer. Both conditions he regards as due to overnutrition. The exciting cause in each case would seem to be an excess of materials in the blood, which is poured out in the form of a cancerous exudation; so the author thinks.

It is patent that such views as these will not receive the unqualified support of all physicians. Still they are those of an excellent and dignified physician, and are entitled to every consideration. In connection with them one may reflect upon two great factors in modern scientific discussion. First, the monumental work of Sajous upon the Ductless Glands, in which great stress is laid upon the lymphatic system; and secondly, the important role which many great workers assign to the digestive tract in the development of tuberculosis. And we may, in fairness, conclude with Dr. Rabagliati's summary of the causation and cure of disease:

"I know as well as any omniscient critic that there is no panacea against suffering. Do what we will or may, there will always be a great deal of it. That also has its lessons, with which I do not pretend to deal. But, if any man can tell us what better remedy, even if there is no panacea, there is for the evils of life than

moderation in all things, whether in work or rest, in food or drink, in joy or sorrow, in egoism or altruism, he will do well to declare it. And if he can offer a better approximation than mine toward the definition of what moderation is, no one will be readier than I to consider and adopt it."

Benjamin Rush.—On the grounds of the Naval Museum of Hygiene, in Washington, stands the imposing monument to the memory of Benjamin Rush, which was erected on June 11 by the American Medical Association. The principal address on this occasion was made by Dr. J. C. Wilson, and President Roosevelt accepted this gift on behalf of the government. Mr. Perry designed the bronze statue, and Mr. Metcalf the pedestal. This great man, perhaps the most eminent of American physicians, was born in 1745, and was educated at Princeton and Philadelphia (of which city he afterward became an energetic citizen); and he pursued his studies also in Edinburgh, London and Paris. He was made professor of chemistry at the College of Philadelphia, and later, in 1781, was elected to the chair of medicine in the University of Pennsylvania. To him was undoubtedly due the pre-eminence through many years of Philadelphia as a medical centre. He was one of the founders of the College of Physicians (the equivalent of the New York Academy of Medicine), and was until 1801 an officer of the American Philosophical Society. He took an active part in the political movements leading up to the revolution; and was a signer of the Declaration of Independence. He was, indeed, a member of a committee of two who reported to the Provisional Conference on the expediency of the Declaration, and is supposed to have written the report, much of which was incorporated in that great document. He was a surgeon-general in the war of independence, but resigned after two years, because of a difference with Washington, it is said, in regard to hospital stores. His interests were manifold. He advocated the abolition of slavery, temperance, the higher education of women, international arbitration, religious liberty, and the like. His work on behalf of the insane was perhaps his most important service to medical science. He objected to the confinement of lunatics in cells, and suggested their care in detached cottages. He died in 1813. Dr. Wilson said of him: "Nearly a century has passed since Benjamin Rush was gathered to his fathers. To his contemporaries he was a man not unlike other men, having his virtues and his faults, a good citizen, a skillful physician, kindly, courteous, benevolent, and having on occasion much fight in him. He was even known to have some fame in distant lands, chiefly because of a wonderful, clear narrative of the bilious yellow fever of 1793, which he had written. To us, who see him through the vista of one hundred years, he stands, not indeed, the most conspicuous figure of a time brilliant with heroic men and deeds, but great among the greatest, and certainly the most striking and impressive figure of the medical life of America at that period, or any period since." Dr. Wilson's last sentiment is true, in one respect, unfortunately so, for we know of no physician since the time of Rush, who has in equal degree or, in fact, in any consequential degree, impressed himself upon the politics of his country.

BIBLIOGRAPHICAL

A Laboratory Guide in Elementary Bacteriology.—By William Dodge Frost, Ph.D., Assistant Professor of Bacteriology, University of Wisconsin. Third Revised Edition. 395 octavo pp. Price, \$1.60. New York: The Macmillan Company, 1903.

This is the third edition of an excellent laboratory guide brought up to date. In order to impress the student with the comparative study of the subject, the various bacteria are arranged in groups, and the book will be found in every way a useful text-book.

National Mosquito Extermination Society Bulletin No. 1, November, 1904.—Henry Clay Weeks, Editor, Bay Side, N. Y.

This little brochure contains the objects of the Society, and other interesting matter relating to its work. It shows great progress along its line.

Mental Defectives: Their History, Treatment and Training.—By Martin W. Barr, M.D., Chief Physician Pennsylvania Training School for Feeble-minded Children, Elwyn, Pa. Illustrated by 53 full-page plates. 368 octavo pp. Philadelphia: P. Blakiston's Son & Co., 1904. Price, \$4.00.

This interesting volume is the result of the twenty years' experience of its author, in the study and care of a class of poor unfortunates, in which there is utter hopelessness of cure. He has, however, made clear the possibilities that may be attained by training, and of safeguarding the irresponsible from crime and its penalty. There is no question as to the truthfulness of the data here presented, and it is addressed primarily to anxious parents and to teachers, rather than to the scientist. The book can be highly commended for its purpose.

Diseases of the Lungs, Bronchi and Pleura.—By H. Worthington Paige, M.D., Lecturer on Theory and Practice of Medicine in the New York Homœopathic Medical College. 165 pages. Cloth, \$1.00. Postage, 8 cents. Philadelphia: Boericke & Tafel. 1904.

This little volume is intended as a hand-book for the student and the general practitioner in the diseases of which it treats. The text is concisely and intelligently written, and contains only what is required for such a purpose.

The Diseases of the Uterine Cervix.—By Homer Irvin Ostrom, M.D., New York, Surgeon to the Metropolitan Hospital, etc. Author of "A Treatise on the Breast and its Surgical Diseases," "Epithelioma of the Mouth," etc. 386 pages. Cloth, \$2.50. Postage, 18 cents. Philadelphia: Boericke & Tafel. 1904.

This distinguished author discusses the diseases of the uterine cervix separately from those of the corpus, because of their anatomical and functional division which continues with increasing distinctness through reproductive activity. The pathological processes that have their initial development in the uterine cervix are quite distinct in their etiology, construction and clinical course, from those that originate in the uterine corpus.

The reasons for this consideration will be found in the domain of special investigations in general, and they lead to greater accuracy in study.

Dr. Ostrom, from his large and varied experience, is fully competent to write such a work, and there is no doubt that its usefulness will be appreciated by every gynecologist.

Twenty-third Annual Report of the State Department of Health of New York for the Year Ending December 31, 1902.—Albany: The Argus Company. 1903.

Dr. Daniel Lewis, the efficient Commission of Health, has presented an elaborate, exhaustive and instructive report, with two volumes of maps, covering the affairs of his department for the year 1902, which is worthy the study of those interested in the subject. The community is to be congratulated upon being able to procure the services of such an able officer.

The Perverts.—By William Lee Howard, M.D. 12mo, cloth bound. Price, \$1.50. New York: G. W. Dillingham Company.

This remarkable and unique work is a romance in which are graphically described the many morbid mental conditions existing in society to-day. The mystery surrounding the perverted actions of men and women of brilliant intellect; the inner life of the dipsomaniac, the moral palsy of that anti-social being, the virile woman, and the detailed word dissection of the moral criminal are all here plainly, and in a manner intensely interestingly woven into a story certain to compel the attention of every reader.

The perusal of this volume by the general public will tend to make the work of the alienist less difficult in certain cases of perverted instinct, the predisposing causes of which are inherited.

Physiological Economy in Nutrition with Special Reference to the Minimal Proteid Requirement of the Healthy Man.—An Experimental Study. By Russell H. Chittenden, Ph.D., LL.D., Sc.D., Director of the Sheffield Scientific School of Yale University and Professor of Physiological Chemistry; Member of the National Academy of Sciences, etc. New York: Frederick A. Stokes Company, 1904. Octavo, pp. 478.

This volume contains a report of the remarkable scientific experiments of Prof. Chittenden at Yale College in the study of the food requirements to meet the physiological needs of the body, the reports of which have astonished the world. It has been pronounced a wonderful revelation of the real dietary needs of man, and there is no subject of greater physiological importance. In presenting his results, the author has refrained from lengthy discussion, allowing the scientific facts to stand for what they are worth, believing that the conclusions they justify are self-evident. The book is a great addition to the subject of nutrition, and will form the basis of future study in this department of physiology. The work deserves a wide reading.

Progressive Medicine: a Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences.—Edited by Hobart Amory Hare, M.D., and H. R. M. Landis, M.D., and published by Lea Brothers and Company.

This quarterly is before us for December, 1904, and as usual is replete with interesting and useful information—diseases of the digestive tract and allied organs, anesthetics, fractures, dislocations, amputations, surgery of the extremities and orthopedics, genito-urinary diseases, diseases of the kidneys and practical therapeutic referendums are the subjects treated. This volume is worthy a place in any medical library.

A Clinical Repertory to the Dictionary of Materia Medica, Together with Repertories of Causation, Temperaments, Clinical Relationships, and Natural Relationships. By John Henry Clarke, M.D. 347

royal octavo pp. London: The Homœopathic Publishing Company, 1904.

Those practitioners who make use of a book of this kind will find here a new and novel arrangement which should be a great help in selecting the remedy in a given case. The work is divided into five parts, and explicit instructions are given as to its use. The work deserves the consideration of those for whom it is intended.

CORRESPONDENCE

THE DELEGATE PLAN OF THE AMERICAN MEDICAL ASSOCIATION.

To the Editor of THE MEDICAL TIMES:

Our esteemed contemporary, the *Virginia Medical Semi-Monthly*, devotes considerable space, in recent issues, to a consideration of the delegate principle of organization, required by the American Medical Association. The editor of the journal, Dr. Landon B. Edwards, and Drs. Richard T. Styll and Wm. S. Stoakley, oppose the method of delegation of authority to a special body, as contrary to American principles, and mention certain local reasons, especially connected with difficulties of transit, as rendering the insistence upon membership in a county society as unwise, at least for Virginia. Yet the very genuine interest of the Virginia profession in its state society is shown by the fact that it has enrolled nearly 57 per cent. of the total practicing physicians, a proportion exceeded in only three states, Alabama, Delaware and Louisiana. Dr. Old, however, speaks in favor of the proposed change, and severely criticises the recent meetings of the society as too much given over to political interests, and to discussions not directly of a scientific nature.

In view of the peculiar conditions of the medical profession in New York State,—and which seem to be very far from the speedy settlement hoped for during the last year or two—we are especially interested in any criticism of the general plan of the American Medical Association. It is only fair to anticipate the criticism that the *Virginia Medical Semi-Monthly* is editorially biased in its attitude, and yet we believe no one will claim that this bias has been used to distort the presentation of the facts.

In view of the urgent need of professional unity, not only in individual states, but throughout the entire country, it would certainly be politic for the national association to interfere as little as possible with local prejudices and individual freedom of opinion. In other words, the main object should be to get together the various components of the medical profession, and any plan of organization should be as elastic as possible in order to fit existing local conditions. The best machinery is the simplest.

It happened that we were among those to whom the preliminary draft of the revision of the constitution of the American Medical Association was submitted for informal criticism in 1901. The instrument seemed most efficient, and admirably adapted to its purpose, save that, from local affiliations, it seemed to us unwise to force the issue between the society and the association in New York. That temporary harm has been done by this insistence, is a matter of recent history; whether the ultimate result will prove advantageous or not, only future history can determine.

We feel that our personal opinion as to the plan of the House of Delegates is so divided and of so gen-

eral a nature, that we may discuss the matter disinterestedly and impartially. Dr. Edwards and his colleagues characterize this plan as essentially un-American, and this must be admitted to be the case, since it practically does away with the possibility of the direct expression of personal views as to the conduct of the state and national associations. Yet the delegation of authority has ample precedent in our political life, and is a matter of acknowledged necessity in any large body of men. We must remember, even that our representatives are not directly representatives of our own opinions, since they are not bound to voice the opinions of their electors, or to be guided by a vote of their constituency as to any issue.

The plan of government of the American Medical Association is not directly opposed to that of the Medical Society of the State of New York, although it does not conform at all closely with the precedents of the latter. So far as insistence on county membership is concerned, the national body has simply followed the policy which the latter had incorporated in the laws of the state, almost a century ago. If the institution of a House of Delegates is less free than the custom of the New York State Society, it is counterbalanced by the provision that any member of a county society is eligible to membership in the state and national bodies, whereas the New York Society has required its members to have had five years' experience in practice, and to have served three years as delegates from county societies before being elected to permanent membership. At any rate the Medical Society of the State of New York has consented to change its by-laws so as to conform with the regulations of the American Medical Association, in order to secure the great central object of professional unity.

Thus, in discussing the wisdom of the plan of the House of Delegates, we are prejudiced against it, neither by personal opinion nor by affiliation. The mere fact that opposition has developed to this plan, is good reason for reconsidering it. Obviously, it cannot be expected that all tastes can be exactly suited, yet a matter of organization is not of enough importance to be allowed to stand in the way of any considerable adverse opinion. Certainly, neither the uniform maintenance of county organizations nor the method of conducting routine, non-scientific business, is important enough to be insisted upon in the face of even a respectable minority.

A very important point to be considered is that the fundamental policy of the United States is the supremacy of state government, in all local matters. The opposition to the American Medical Association's plan of organization is, to a considerable degree, an expression of the dogma of states rights—explicitly so in the case of some of the members of the Virginia Society—and, unquestionably, the same feeling has had its influence in New York and other states. Personally, we are entirely free from any such influence, indeed, we would express the personal preference for a strong national government with no intermediate government between it and the city or a convenient unit of rural local government depending upon the population for its area and representative power. But the present inapplicability of such a system requires no argument. So far as a national medical organization is concerned, there is no legal power to create or to maintain it, save by purely voluntary co-operation. Legally, indeed, the American Medical Association is nothing but a private so-

ciety, incorporated under the laws of the State of Illinois. For an association thus organized to dictate details of self-government to bodies of cognate power and of much older charter, is, in a sense, impertinent, and certainly utterly out of the question when the state organization is actually a branch of the state government, as in the case of the Medical Society of the State of New York, and certain other state medical societies.

Thus, in spite of the beauty and perfection of the scheme of organization required by the American Medical Association, it must fail of its ultimate object of securing professional unity and organization, if the attempt is made to enforce it against any considerable local opposition. That the ultimate object should be professional unity and organization, needs no argument. Even to suggest that this is not the immediate object, is to arraign those who have the greatest influence in the national association. Thus, if it shall develop that any considerable local opposition is felt toward any of the provisions required by the American Medical Association of its state components, good faith and sound policy demand the modification or repeal of those provisions at an early date.

The wisdom or unwisdom of requiring county membership, depends largely upon local conditions of population, geography and transportation. Even the alternate method of forming societies covering two or more counties, should not be insisted upon. As has been pointed out by some of the Virginia doctors, nature has, in several instances, erected barriers which have been ignored in laying out county boundaries, and railroads have not always foreseen the advantages of medical meetings according to political divisions of territory. Moreover, purely personal and economic considerations often render it difficult for physicians to maintain an active and practically useful affiliation with any but a purely local or the state society. If these are the conditions in Virginia, they certainly must be the same in many of the Southern and Western states. It is obviously of no practical benefit to maintain a nominal county organization contrary to these practical obstacles to the maintenance of an active society.

The time has already been sufficient to demonstrate that the institution of a formal House of Delegates is not without its disadvantages. First of all, representative government necessarily excludes from all participation in business matters and those of professional policy, all except successful seekers after political office. Defeated candidates, and many men who will not or cannot pose as candidates at all, may be admirably adapted to influencing legislation, but they are absolutely prevented from having any formal hearing. As we understand it, one physician in 500 may have a voice in the conduct of the American Medical Association, and one in about 20—allowing for representation of "fractions" of 25—in that of the state societies. The delegate system is of advantage in saving time for scientific discussions, and in shutting out impromptu political machinations. It is of disadvantage in preventing discussion from the floor, and in keeping away from the scientific sessions, men of prominence who are needed in the House of Delegates. Moreover, we seriously question whether, in the long run, the experience of the medical profession will prove different from that of the country at large. Political organization attracts men who are by nature politicians. Such men are not,

as a rule, interested in science, and our general experience is that they are not interested in the economic welfare of their constituents. While we do not anticipate that the medical profession will suffer to the degree which the people as a whole have suffered, it seems not unlikely that, in ten years, the House of Delegates will be controlled by men who are not especially prominent in medical science, and who can not adequately represent the medical profession. With the present freedom of speech upon the floor, any tendency to such control brings about its own reaction, while popular sentiment may also be entrusted to prevent too much attention to mere details of routine, although different bodies manifest much difference in their relative interest in business and science.

All things considered, it occurs to us that a reasonable compromise would be to continue the House of Delegates of the American Medical Association, as at present constituted, but to leave each state society free to conduct its own deliberations, and to secure members as it sees fit, subject only to such restrictions as would insure that the recognized state society was genuinely such, and that it was open to the profession generally. Indeed, it requires no great insight to recognize the fact that many of the restrictions which the American Medical Association has placed upon the state societies originated in the not unnatural desire to assure the representation of the New York State Medical Association, and to exclude the Medical Society of the State of New York. On general principles, the national body could not recognize two antagonistic state organizations, and, in the absence of the peculiar local conditions, the senior body, vested by state law with the control of medical education, and many other medical interests, would naturally have been preferred to a junior, seceding organization, however excellent in its aims and conduct. The reorganizers of the American Medical Association had a most difficult task before them, and they performed it most ingeniously. Personally, we believe that they should have postponed the operation of the plan of reconstruction until the breach in New York had been healed, and we believe that this object could have been achieved very readily with the authority of the American Medical Association. Still, it is only fair to recognize the claim which their New York adherents had upon the parent organization. But, in attempting to create a general provision with a special and temporary purpose in view, it is inevitable that elasticity and adaptability shall be lost, and, in this instance, friction has been produced which could not have been foreseen nor prevented, without sacrificing the immediate reason for the reorganization of the American Medical Association.

However, there seems to be no question but that the time is now ripe for a frank consideration of the general issue of professional reunion. Only technical and local obstructions exist to the reunion of the New York profession, the great majority of both Society and Association being not only ready for amalgamation, but heartily disgusted with the obstructionists. This reunion is also favored, so far as can be ascertained, by the profession of the whole country, and it can easily be accomplished by the influence of the American Association. There will then be no difficulty in the way of expunging such restrictions on the state society as have proved stumbling blocks in Virginia and elsewhere.

A. L. BENEDICT.

THE CLINIQUE

The Nature and Treatment of Sore Throat.—In the changeable climate of the temperate zone, sore throat is one of the commonest, and yet often one of the hardest conditions for a physician to heal. Of course, the most frequent form of sore throat is acute catarrhal pharyngitis, for example, a person with a delicate throat is exposed to cold, and finds in consequence that he swallows with difficulty, and experiences some pain in the throat. In such a throat as that there is a general injection of the mucous membrane, and not much else. It is a simple matter, which will get well under ordinary treatment; gargling and perhaps a purge is all that is required. The only thing that I would say with regard to the question of the possibility of its being an infectious sore throat: such a throat may possibly be the beginning of scarlet fever or diphtheria. Simple as it seems, it is essential to avoid any possibility of error, and to isolate immediately any one suspected of sickening of either of those diseases. Then next in frequency to this simple pharyngitis is tonsillitis, or "quinsy." Here the patient, more often female than male, and frequently a young person of delicate habit, has been exposed to cold, and finds difficulty in swallowing and in speaking. The thickness of the voice is very characteristic, and when once heard, it will be recognized directly; such a patient, you will say to yourself, has inflammation about the tonsil, and now, on looking into the throat you see at once that the tonsil is considerably enlarged, and the fauces are injected, but the characteristic feature is the palate pushed forward by the large tonsil behind. Here let us study a little of the anatomy of the part; we must remember that the tonsil in health is situated between the anterior and posterior pillars of the fauces, and that ordinarily we see only a small portion of the tonsil projecting to the middle line; when the tonsil becomes inflamed, the whole organ becomes enlarged and forms a projection behind the soft palate, pushing forward the latter, which is somewhat red and discolored; in these cases the patient has difficulty in swallowing, and has a good deal of pain, often extending up the Eustachian tubes to the ears, and the consequence is that they endeavor to avoid swallowing as much as possible, even the saliva, which they hawk up with considerable difficulty, and consequently they find great difficulty in eating. Bear this in mind, because these patients require food and nourishment, and unless you are careful to support them by properly-prepared liquid food, you may find them running down and getting into a very wretched shape. Early in the stage of acute tonsillitis an emetic has great effect, such as warm mustard and water. It is very remarkable what an effect this household measure has in producing revulsion and stopping the inflammatory action about the tonsil; but, unfortunately, one does not often see the patient in time. Generally the inflammation has gotten beyond the stage at which the emetic could stop it, and you have, therefore, to treat the disease as it exists. In acute tonsillitis there can be no question about the propriety of warm applications,—hot applications inside and hot poultices outside. With regard to medicine I give the patient belladonna in repeated doses, and I should give drop doses of the tincture of this drug every hour, if the inflammation does not subside within twenty-four hours surely an abscess will form. I want to say a

word particularly as to the place at which that abscess should be opened. No doubt patients have lost their lives before now from an abscess in quinsy suffocating them; and, again, there are plenty of cases on record where, at the last gasp, as it were, the abscess has burst and the patient has been immediately relieved and got well. But the surgeon can do a great deal to relieve by a judicious puncture at the proper place and in the proper manner; make your puncture with a guarded bistoury through the soft palate into the tonsil. Do not try to get round the anterior pillar of the fauces, because, if you do, you will have your knife in a oblique direction, somewhat dangerous, perhaps, for the carotid artery; but take my advice and go straight back through the soft palate, and I will undertake to say that no effort on your part can possibly bring the knife into any relation at all with the carotid vessels. Of course, it is difficult to be quite sure in all cases that matter has formed, and it may be that on making your puncture into the tonsil through the soft palate nothing but blood escapes, but so much the better for the puncture will relieve the congestion; it may possibly save the formation of an abscess; or if it should happen that an abscess forms later, the matter will be able to find its way out perfectly easily through the puncture you have already made. But in a good many cases you will find the matter already there if you will make the puncture, as I say, through the soft palate and by cutting a little upward open the upper part of the tonsil. When the abscess is opened the patient is relieved at once; he can swallow, he can speak, he begins to take food, and speedily gets well.

Now comes acute oedema of the pharynx, which tends to spread down to the larynx, making it so dangerous to the life of the patient. The patient is ill, is hoarse, and when you look into the throat you see not very many signs of inflammation, but a general oedematous condition of the parts: the uvula is twice its proper size; the pillars of the fauces are considerably swollen, and if you put your finger in you will probably feel that the tissues about the epiglottis also are considerably swollen. The danger of these cases is that the oedema may so involve the upper part, and extend down into the larynx that the patient's breathing may become very much embarrassed, and, if not promptly relieved, may cause him to lose his life. When you are called into a case of that kind there is very little difficulty in recognizing it, if the disease has already involved the air-passages, because the breathing of the patient is so very characteristic; the noise which the patient makes in the drawing in and out of his breath, is so characteristic that you can recognize it, in fact, before you get into the room. A case of that kind is of the most urgent description; remain with that patient until you have relieved him, and the best way to do this will be to make some punctures with a sharp bistoury into the oedematous tissues at the base of the tongue. The operation is not a very serious one; protect the blade of your bistoury with a piece of lint, and, taking the point of the knife under your forefinger pass it well back to the epiglottis, puncture and incise in the neighborhood of the epiglottis and back of the tongue, so giving very great relief to the patient. Some little blood comes away and a good deal of serum, and then, by assiduous hot gargling, very probably the patient is immediately relieved. Now, of course, a case of this kind may at once be relieved and get well; but you

must be prepared for a more serious proceeding if it should be necessary, and, as these cases generally get worse towards night, you should make a point of seeing them in the evening, and be prepared if necessary to do laryngotomy; the œdema never extends below the vocal cords, and if you do laryngotomy, you are, of course, completely below the vocal cords, and give your patient efficient relief, and with very little risk. Tracheotomy is a more serious operation, and while laryngotomy is such a simple proceeding I do not think any physician should dread it. All he has to do is to pass his finger from the sternum upward, and to mark the first projection which he meets with in the neck: that is the cricoid cartilage. If he make an opening into the windpipe immediately above the cricoid cartilage, he will do all that is necessary for his patient, and will probably have no trouble in doing it, and, therefore, as well as for the reason I have already given,—that is amply sufficient for all cases of œdema. Tracheotomy of course, is a perfectly justifiable proceeding, if you have got assistance handy and all your necessary instruments.

When laryngotomy is done, of course, the ordinary laryngotomy-tube should be inserted; but if you have not got a laryngotomy-tube a small tracheotomy-tube will answer every purpose; and even in the absence of all tubes it is quite possible to keep the wound sufficiently open with a pair of scissors, or even with a safety pin. In that way keep open the wound until you have had time to procure the ordinary tube, and the probability is that at the end of forty-eight hours all œdema will have subsided, the tube can be removed, and the patient will recover.

These are the three principal forms of acute sore throat, but let us study the more chronic forms of sore throat; and first with regard to that form which is known as "hospital sore throat," when a resident in a hospital, being necessarily exposed to bad air and hospital influences, finds that his throat is sore, that he cannot swallow quite comfortably, that he has lost his appetite, and that he is feeling sick, look into a throat of that kind, and you see a general congestion of the parts, which, of course, it is important should be relieved as soon as possible. Now for that kind of sore throat, which you may meet with also in private houses as the result very often of some bad air from drains, I know of no better local application than sulphurous acid and glycerin, in equal parts, which, painted on a throat of that kind, gives quick relief. At the same time the patient should be taken out of the evil influences from which he is suffering; should be sent into the fresh air, should have plenty of nourishing food and some wine, and he will very soon get well; those are cases which recover most satisfactorily if the patient is put under hygienic conditions. Again, a young man comes to you because his throat is sore, but when you look into it you see at once a very characteristic appearance on the tonsil, a gray excavated ulcer, which is always the result of secondary syphilis. Then, again, a married woman comes who has not the slightest suspicion that she has acquired the disease from her husband, and I need hardly say how cautious you should be in giving the slightest hint which may lead to domestic unhappiness. These cases of syphilis, of course, are simply symptomatic of the syphilitic poison which is already in the patient's blood. It is no business of yours to find out, very particularly how the poison got there;

it is quite sufficient that you recognize a secondary syphilitic throat, and you proceed to treat it by treating the syphilis, and also by treating the throat. The bichloride of mercury is, no doubt, the best remedy which can be given for secondary syphilis, and as regards the throat, you may brush it over with any stimulating application. Perhaps a mercurial gargle is one of the best applications, a bichloride of mercury gargle, say one of a quarter of a grain to the ounce, with a little honey, letting the patient gargle his throat two or three times a day with that until the ulceration is healed. But then, again, there is another form of sore throat which you may see both in adults and occasionally in children: tertiary or congenital syphilis affecting the palate and pharynx. Ulceration of the back of the pharynx is always suspicious. Patients who have no other symptoms whatever of syphilis have this tertiary ulceration of a peculiar seriginous character, affecting the palate and pharynx, and children who have inherited congenital syphilis from their parents have the same kind of affection. Those are all cases which can be very well treated by iodide of potassium internally, and by local insufflation of iodoform, or, perhaps better, iodol combined with borax.

Chronic tonsillitis frequently is formed in children and young people; the appearance of a child with enlarged tonsils is very characteristic, because he cannot breathe through his nose, instead he sits with his mouth open, which gives a peculiar and very characteristic stupid appearance to the face. Then, again, you will find that in many of these cases there is a certain amount of deafness due to the involvement of the Eustachian tube, and many of these unfortunate children are thought to be very stupid when they really are a little deaf; these deaf children are often treated as inattentive, when really the fact is they are not able to hear. When you look into the throat and see the large tonsil there cannot be a doubt about the nature of the case; the tonsil is two or three times its proper size, and meets its fellow in the middle line. Not merely is the tonsil enlarged, but you will notice probably that there is a good deal of chronic affection of the whole of the mucous membrane of the pharynx and nasopharynx; there are, in fact, adenoid vegetations which extend up into the posterior nares. Now, a tonsil, of course, can be treated with various local applications, but, after all, the best plan is, in case of the chronic enlargement, to remove a portion of the gland. By far the simplest method is to use the ordinary guillotine, which is by no means a new instrument, which takes off a considerable portion of the tonsil, but does not aim at removing the whole. Having got rid of the tonsil you will then proceed to treat the adenoid vegetations, which can be scraped away most satisfactorily with the finger if you gag your patient (and it is hardly safe to deal with a child without gagging it); then slip the finger behind the soft palate and up into the pharynx, where you will come to a great mass of soft tissue filling up the posterior nares. With the nail you can scrape those away very satisfactorily, and more so, I think, than with any instrument; the patient will then be able to blow the nose, and you can follow up the treatment afterwards by introducing a bent brush into the nasopharynx behind the soft palate and applying to it glycerin of carbolic acid. That applied thoroughly to the nasopharynx produces extremely good effects, and the painfulness of the application can be completely got over.

by using a little cocaine with it. The cases of chronic tonsillitis and adenoid disease occur in children of the strumous type, and you, therefore, must also treat the so-called struma. Many of them, no doubt, are instances of congenital syphilis, slight it may be, but still there is the syphilitic taint, and it would be well to bear in mind, and to examine the condition of the teeth and to see whether there are any evidences in the central incisors of the notches, producing Hutchinson's teeth. In these cases cod-liver oil is extremely useful; the syrup of the iodide of iron is perhaps still better, or any of the ordinary tonics used in childhood may be employed. Get those children out in the fresh air as much as practicable.

Now comes the sore throat of speakers, sometimes called "clergyman's sore throat." One reason why speakers suffer in that way is because they have never been properly taught how to speak. If the clergy would learn to use their lips and always to speak out to the man at the end of the church, the intervening members of the congregation would have no difficulty in hearing what they say, but if they will speak, as some of them do, in their throats instead of enunciating their words with their lips, of course they are not heard well, and there is a tendency to produce from the strain upon the throat a congested condition of that part. It is a curious fact that you are hardly ever consulted by elderly married clergymen for affections of this kind. It is in the young and unmarried that "dysphonia clericorum" occurs, and it is a good deal a nervous disease, and it may be connected in some way with the sexual organs. When a man gets married he forgets about his voice and settles down to his clerical duties, and has no great difficulty; but it is the young and unmarried curate, who is no doubt often placed under circumstances of considerable trial, who finds that his voice is breaking down and that he is, consequently, obliged to throw up work and to seek medical advice. When they come for advice the first thing I should strongly urge you to do is to advise the clergyman to use his lips. If he will use his lips, as I said before, he will save his voice; and then, in addition to that, you may very well give him a spray to use. Before he goes on duty, before he goes into the pulpit, he should spray his throat; and, perhaps, one of the simplest and best sprays is a spray of sulphate of zinc, two grains to the ounce, which is perfectly harmless, and extremely useful. Then, again, he may do good by sucking a lozenge occasionally. Perhaps one of the best is a tablet made of one grain of chlorate of soda and three grains of borax. This is made into a tablet, and can be sucked slowly, giving relief.

Again, curiously, I have found from experience that lecturers and speakers should avoid eating before speaking. Hoarseness and indigestion seem to come on together. If a speaker will take no meal or a very slight one, before lecturing or talking, he will be far less liable to this complaint.

Methylene Blue in Malaria.—In 1891 Ehrlich and Guttman tried the use of methylene blue in intermittent fever. Up to this time the agent was regarded simply as a staining fluid used principally in studying the plasmodium malaria. The results were favorable, and the drug has been used abroad with success, but it is practically unknown in America. Wood has recently tried the drug in a series of malaria, some quotidian

and some tertian in type. As a result there was a cessation of symptoms with a permanent cure following.

Wood has culled from medical literature four hundred and twenty-five cases treated in this way in which there were three hundred and sixty-two cures. Ziemann has reported two hundred and seventy-five cases, with only eighteen relapses. While Floeckinger states he has used methylene blue in six hundred cases, and praises it highly as an antiperiodic. There have been unfavorable reports, but the unfavorable authorities only report a few cases.

Methylene blue does not produce the immediate cessation of the paroxysm which often is seen with quinine. Iwanoff explains this difference by stating that quinine in its toxic action upon the parasite of intermittent fever attacks the chromation of the organism, and, therefore, the younger parasites are more susceptible, while methylene blue attacks the protoplasm, and thence the younger forms escape, but the adult protozoa are killed more easily by this drug than by quinine. The crescent form which resists quinine is easily killed by methylene blue.

Methylene blue is chiefly indicated where quinine is contraindicated, as in cases of idiosyncrasy, hemoglobinuria, etc.

The best way in which to give the drug is in doses of two or three grains every three hours for a week or ten days, gradually withdrawing it. A number of unfavorable symptoms have been reported following its use, such as vomiting, strangury, and loss of appetite. Later authorities have attributed these features to impurities, the dye being used. Medicinal methylene blue is the simple chloride of tetramethylthionin, while the dye is the double chloride, and contains impurities, including arsenic. A serious drawback to this drug is its staining properties; the urine presents a bluish or greenish tint, and the mouth and saliva may be tinged. Still an explanation to the patient should obviate this objection.

The stools are not colored, as the drug is eliminated by the kidneys, and it can be used in conjunction with quinine if desired. Wood feels that in methylene blue we have an antiperiodic which rivals quinine in power, and which is in many cases to be preferred to that alkaloid on account of its freedom from unpleasant by-symptoms.

Curing Epilepsy by Treatment of the Eye Symptoms.

—Permanent cure in epilepsy has a different meaning in the minds of different authorities. Sinkler, in writing of cure in epileptics, makes a requisite that the patient must go for years without any sort of convulsion. The term "permanent cure," like the term "a more perfect union," is generally in a mundane finite sense of practical relief from the condition. The thralldom of the bromides is a serious cloud in the epileptic's treatment; it is often forced on the practitioner for the patient naturally demands any drug that will diminish or arrest the frequency of epileptic seizures, so the practitioner is practically forced to fly at once to some powerful nerve depressant.

Ranney, as far back as the eighties, tried the correction of eye trouble as a possible reflex cause of epileptic seizures. In a recent issue of the *New York Medical Journal* he repeats the recent history of twenty-six patients whose data he has given in his work, "Eye-Strain in Health and Disease."

Four cases abandoned treatment almost from its beginning; of the remaining twenty-two, ten, eight years after the publication of his work, are well; while amelioration was noted in nine cases, and no improvement in three cases.

Ranney's experience in investigating the causes of epilepsy for nearly twenty years lead to the following conclusions: Epilepsy is not necessarily an organic disease; there is always hope of a radical cure. A very large proportion of epileptics suffer from some type of reflex trouble, viz., ocular, abdominal, genital, or other local sources of nervous irritation. Of these the eyes are unquestionably the most frequent seat of trouble. No medication should ever be employed to control epileptic convulsions until every possible exciting cause has been intelligently sought for. The refraction of all epileptic patients should first be carefully determined under the influence of a hydragric.

It is usually advisable to first correct fully the refraction of epileptic patients by properly prescribed glasses; and to have the patient wear them for a time, before positive conclusions are arrived at regarding any maladjustments of the eye muscles (heterophoria). A large proportion of epileptics unquestionably suffer from heterophoria. After the correction of errors of refraction by glasses for a time, the tests for maladjustments of the eye muscles should again be made.

The prescribing of glasses to correct errors of refraction has always been considered by Ranney as vitally important in the treatment of eye-strain. It is imperative to do this first; and to have patients wear glasses for refractive errors constantly for some time (whenever marked muscular errors exist) in order to determine if they are modified by the refractive correction.

To colonize epileptics or to place sufferers of that type in private sanitariums without any investigation of their eyes and eye muscles cannot be too strongly condemned.

Ranney thinks the total percentage of epileptics who suffer from eye-strain as an important factor is very large; after first deducting from the total number the comparatively small number of cases that owe their epileptic seizures directly to some organic lesion of the brain or to a depression of the skull. Almost all chronic epileptics give a history of falls that have some time injured the head in some way. Few of them, however, have enough depression of the skull to make trephining imperative, and in every such case the injury must have preceded any epileptic seizures to make it probable that the fits were the direct result of the injury. The duration of eye treatment in epilepsy varies from three months to three years. Most of the work is done during the first six weeks; but long intervals of rest, between the successive operative steps that are commonly demanded, often extend the period of treatment over quite a long period whenever the convulsive seizures are not totally arrested.

This experience of Ranney should lead to the examination of the eyes in every epileptic, wherever situated, providing the case is not so far advanced that mind and health are gone.

The Sleeping Sickness.—This disease has existed for some time in the Congo in Africa. The natives there seem to be comparatively immune. It was only when it was brought into Uganda that it became a deadly

plague; in the last few years more than one thousand inhabitants of that region died of it. No cure is reported; no treatment has been found effective.

Prof. E. Ray Lankester, in the July *Quarterly*, has summarized well our knowledge concerning this disease. The symptoms are very obvious at an early stage. The usually intelligent expression of the healthy negro is replaced by a dull, apathetic appearance. There is a varying amount of fever and headache, which may last for weeks. A difficulty in locomotion and speech, and a trembling of the tongue and hands will then supervene; and upon this increased fever and constant drowsiness, from which the patient is aroused only to take food. At last, usually after some three or four months of illness, complete somnolence sets in; no food is taken, the body becomes emaciated and ulcerated, and the victim dies in a state of coma. The course of the disease may last from two to twelve months.

Colonel Bruce, of the British Army Medical Department, has demonstrated the *Trypanosoma*, an animal parasite, to be the specific cause of the sleeping sickness. It is conveyed from man to man by a special kind of tsetse fly. This fly is a little bigger than the ordinary horse fly; and the "Tsetse Belt" in South Africa is a region in which neither horses nor cattle can live. The natives are indifferent to fly bites, and they consequently die like rotten sheep when once this parasite is introduced into districts where these flies abound.

As we have noted, the natives of the Congo, where the disease has existed for some time, seem to be comparatively immune. This would seem to be in accordance with the laws governing infections in general. And Prof. Lankester rightly uses the story of the sleeping sickness as a powerful argument in favor of the granting of adequate sums for the scientific investigation of the laws governing parasitic diseases.

Alcohol Surgery.—Pearce Gould, M.S., M.D., M.R.C.S., surgeon to the Middlesex Hospital, says: I have for many years dispensed almost entirely with alcohol as an aid in surgical treatment. As a student I saw it used almost as a matter of routine for every kind of surgical malady except head injuries, and in my early years I naturally followed the practice of my teacher, but as soon as I made trial for myself of the effect of withholding alcohol, I found how entirely overrated its value was, and how gravely mistaken had been the teaching. It is commonly held, I believe, that alcohol stimulants are of special value in all forms of septic inflammation, such as erysipelas, pyemia, septicaemia and hectic fever. I believe that this belief is founded solely upon tradition unsupported by any trustworthy evidence, and untested by experiment or experience. Where alcohol is always given its value cannot be estimated. A right judgment can only be arrived at by a comparison of cases in which it is given with those in which it is withheld. Having made this experiment, this comparison, I have no doubt whatever that not only are there no cases that require alcohol so little as the septic cases, but that there are few in which its influences are so wholly harmful. It has seemed to me that its effect is to dry the mouth, fur the tongue, cloud the intellect, lessen the ability to take, digest and assimilate food, and to do nothing to lessen the tissue waste, to increase the elimination of poison, to maintain the strength of the heart, or to arrest the disease.

The results of experiments on animals exactly agree with the clinical evidence.

Garlic.—Knott shows (*New York Medical Journal*) that garlic was held in great esteem by the ancients as a cure for and preventive of disease. He believes that whatever power the drug may have is probably due to the allyl compounds it contains. The author quotes Carrazani thus: He believes that a sufficiently generous use of garlic in tuberculosis will produce immunity against infection. Of a group of guinea pigs kept in an atmosphere charged with tubercle bacilli, those whose daily diet had contained one gram of garlic were found at the end of three months to be free from tuberculosis, while the others were all badly infected. The amount of garlic which would be required to produce immunity in the human body has apparently not been computed. The views of Dr. Corrazani include a hint at an explanation of the comparatively low death-rate from pulmonary tuberculosis among the Italians, both in their own country and in America.

Sunlight and Warts.—According to *Semaine Medical*, for September 7, 1904, a Russian physician, Naoumov, of Kanzin, succeeded in removing a number of warts from his hands by simply concentrating upon them the solar rays for a period of some thirty seconds, with a convex lens from his ophthalmoscope. He found that the nutritive blood vessels of the warts became occluded; and that the latter, therefore, soon atrophied. A slight induration of the skin remained after the warts had fallen off, only to disappear in its turn after a week or so. The Roentgen rays will destroy warts as is well known, but Naoumov's method is applicable by the humblest practitioner.

Music as a Therapeutic Agent.—F. S. Kennedy (*Medical Record*) says that much assistance is in many instances to be derived from the intelligent use of music, either vocal or instrumental, as a therapeutic adjunct. Melancholia, insomnia, hysteria, family affliction, business reverses, delirium, pain, fatigue, mental or physical, will all be helped by the influence of music, rightly used. As a postoperative measure it would have an undoubted influence for good in taking the patient's mind from his bodily distress. So, also, could "painless dentistry" be relieved of some of its pain and distress by the quieting influence of music, which would, as has been amply demonstrated, produce a pleasanter mental condition during the administration of nitrous oxide or other anesthetic. A German writer has recently stated that in a number of test cases in which music was provided during the administration of the anesthetic, there was an absence of distress and resistance on the part of the patient; also an absence or reduction of the postoperative nausea under the same circumstances.

Alcohol Applications.—Kolbassanko (*Therap. Monatsh.*, XVII., 635) recommends alcohol applications in many surgical diseases. He has seen great benefit from them in simple inflammations, suppuration, and septic conditions, and even upon foci lying at considerable depth. He has been able to prevent many operations by using them alone. Six to eight layers of gauze are saturated with alcohol, varying in strength from 57 to 90 per cent., applied over the diseased area, and covered with a large layer of paraffin paper or oil-cloth. The alcohol is renewed as soon as it evaporates. Tender skins are powdered over with xeroform, or covered with an ointment of xeroform, orthoform, lano-

lin, and vaselin. If the dressing is to be continued some days, the treatment must be interrupted occasionally to permit the skin to recover. The dressing is markedly analgesic, but only while it is moist. The antiphlogistic action is exerted even on pelvic inflammations. The dressing is continued until the spontaneous pains have disappeared. If applied early, suppuration is often aborted by this treatment. If applied late, suppuration is checked and prevented from spreading. Phlegmonous angina and scarlet fever also are favorably influenced by the alcohol dressings.

Illuminating Gas Poisoning.—Hubbard asserts his very positive conviction that the proper way to treat illuminating gas poisoning is by venesection and infusion of normal salt solution. The quantity of blood to be removed must be determined by the condition of the pulse. When the pulse begins to weaken, it is time to stop the blood letting. If after four or five hours evidences of awakening are not present a second venesection may be resorted to.

Advantages of Performing Capital Operations in Certain Cases Without Anesthesia.—Dr. J. J. Buchanan, Pittsburg (Pa. State Med. Society), cited the following indications for this method: (1) profound septic infection; (2) severe collapse from loss of blood and shock; (3) fecal vomiting, with liability to drowning during the operation, or aspiration pneumonia subsequently; (4) collapse or compression of the lung, with liability to respiratory failure; (5) obstruction of esophagus; (6) advanced kidney disease, with liability to anuria. He enumerated in detail the operations suitable for this procedure, and emphasized the slight pain and great tolerance and co-operation of the patients, stating that in an experience of ten years his results had been uniformly satisfactory.

The Subway Air.—Shortly after the subway trains were put to running in New York City, a lady fainted in one of them. This incident was alleged to prove the impurity of the subway air—an inconclusive proof; for ladies have been known to faint under most salubrious conditions. However, as this subway is the first in the metropolis, and is sure to be followed by others, the matter of the atmospheric air in this region has become a subject of much discussion. A number of experiments have been made, the most important being those of Prof. Chandler. He finds the subway air for all practical purposes quite as pure as the air of the street. The circulation of air is good, and it is dry, he declares. The percentage of oxygen is 20.55, while that of the street above is 20.76.

It must be borne in mind that in the beginning there was a stuffy smell, such as is bound to exist in all new underground structures. There is now no such smell to any marked degree. Again, passengers spend but a very few minutes of their day in the tunnel; and it is inconceivable that an individual in average health would be dangerously affected under the circumstances. Undoubtedly there is more danger and less oxygen, and there are more microbes running about loose in a closed, damp, stuffy, jammed elevated road car on a cold day. However, there are two precautionary measures which deserve consideration. The health board regulations not to spit should be sternly enforced in the subway, and subway employees who have weak lungs, or who are otherwise predisposed should not be employed at this work; for they have to be underground many hours every day.

Why does not the stomach digest itself?—A brilliant young physiologist, Weinland, of Munich, as the result of numerous painstaking experiments with the tapeworm, has apparently solved the entire riddle of the non-self-digestibility of the intestinal canal. It is all due to the presence of certain antibodies, analogous to the antilysins and antitoxins with which Ehrlich's great studies have made us familiar. He isolated from the tapeworm an antitrypsin or antiferment, which when added to a mixture of fibrin and pancreatic juice prevented the digestion of the former. He similarly demonstrated the presence of an antipepsin in the secreting cells of the stomach, and of an antitrypsin in those of the intestines. These antiferments neutralize the action of the digestive ferments. It may be added that these antibodies or antiferments are not hypothetical substances, but have been successfully isolated by Weinland.

"One conviction," said Sir Conan Doyle recently, "has always remained with me, and that is that whatever line of life a man goes into, as long as he is to use his brain the medical training is absolutely the best training a man can undergo. There was a time when a young man who was going to do anything in the world was passed mechanically through the bar. I believe the time will come when the similar young man will be passed through medicine, because I know no other means by which he could get to the fundamental and absolute facts of life. The mere fact that in his training a man has to undergo so searching an ordeal in the most critical years of his life, and pays such enormous attention to detail, is in itself evidence that he receives a splendid training. I have always said that a man who has mastered Gray's Anatomy, to him life has no future terrors. If our young army officers had five years' study in the same sense that the young medical man has five years' study we should become the terror of Europe."

The New York City Flat.—But sixty private houses were erected last year in Manhattan Borough, while the number of apartment buildings erected during the same term reached into the thousands; and this is the state of things also in many other large cities. The factor of prime consideration as regards this custom of living in flats is the tendency to race suicide which it fosters. There is no better medium by which the trend of popular thought can be detected than the stage; this fact is well recognized by politicians and other men of affairs. Therefore a vaudeville joke of much popularity may here be reproduced (it is modified, of course, to conform to the chaste pages of our journal): "The Smiths have been married now for several years." "Indeed, how many children have they?" "They haven't any; the janitor won't allow them in the flat." It is, however, a practical, serious fact that people who have children are not desired in apartment houses; and such people have difficulty in finding accommodations—sometimes so great as to preclude their having homes in this Borough.

On the other hand, in the lower grade of tenements and in the slums, children abound to the extent that their welfare is a very serious municipal problem.

The Lunacy Commission.—Drs. Geo. B. Fowler, E. D. Fisher and C. F. MacDonald—have made an interesting abstract of the reports of this commission for the last three years, which shows great progress in the

care of the insane.

Three years ago the Pathological Institute was in a state of disorganization. A new laboratory has been established in connection with the Hospital on Ward's Island, where original work is going on in various departments of medical science, relating to psychiatry, and in addition to this, a majority of all the physicians of the fourteen State Hospitals have been brought down to Ward's Island to receive instructions in modern science as relating to psychology, pathology and the treatment of insanity.

Particular insistence has been paid to the careful study of the clinical side of the patients admitted to the state hospitals. The histories of the patients now taken not only present a clear picture of the mental condition of the patients, but record so completely every physical abnormality, that they are becoming a treasure-house of important data for reference. The accumulation of such histories must ultimately be of incalculable value to investigators in psychiatry and the pathology of insanity, while the very work of their preparation is an education to the physicians in the hospitals who perform the service, stimulating their mental understanding, improving their powers of observation, and sharpening their scientific judgment. It makes them better physicians, and in so doing, profits the patients under their care, who must inevitably reap the benefits of better diagnoses and more expert treatment.

The practice of having regular staff meetings of the medical men once and twice weekly in each hospital, for the discussion of the conditions of the patients, and for the presentation of new and interesting data in the domain of medicine, has been fostered. To this end, the Commission has been liberal in the allowance of medical books and periodicals of all languages, in the purchase of instruments of precision, and in the establishment of well equipped laboratories, surgical operating rooms, and departments of therapy and hydrotherapy. Every one familiar with the medical work now going on in the state hospitals recognizes the fact that there has never been before in the history of state hospitals such an awakening to the importance and value of medical work.

The adoption of some sort of definite policy for the further evolution of the state system of caring for the insane has been accomplished. The rapid growth of the state in population, and the constant influx of alien and non-resident insane, together with the normal accumulation of insane dependents, must inevitably lead to a greater demand for a period of years at least for increased accommodations for the insane. There are now about 25,000 insane in the state, and 5,147 new beds have been added during the past two or three years.

The medical service has been improved by greater care in the selection of medical officers; and within a short time some new regulations will have been agreed upon with the Civil Service Commission, which will enable the hospitals to secure a larger supply and better quality of medical assistants, and all of these men will have an opportunity to study in a special school of psychiatry connected with the Pathological Institute.

Prayer Healing in Germany has become such a fad that pharmacopœias of prayers have been published, different prayers being carefully designated for different diseases and conditions.

MISCELLANY

A branch of the Carnegie Institute at Washington has been opened at Cold Spring Harbor, L. I. It was erected at a cost of \$50,000.

Persons struck by lightning have been revived in seven cases after six hours of apparent death, according to Sestier, as quoted in the *Lancet*.

Cheap goggles for automobilists are said to be very injurious. They should be fitted to the eye by an optician to ensure their being properly placed in regard to the visual axis.

The Nobel prize for medicine, it is reported, will this year be awarded to Dr. Robert Koch. He has been presented with a portrait bust and a festschrift on the occasion of his sixtieth birthday.

Mother's milk is the best, is perhaps Dr. Jacobi's most praiseworthy pleading. Those mothers who are able should even be compelled to nurse their infants because no additions or abstractions can ever change the cow's milk into human milk.

A site for an Alpine research station has been selected on Monte Rosa, at a height of 3,000 meters, by Professor Mosso, of Turin, and Signor Pagliani, the President of the Italian Alpine Club. It is hoped that it will be in working order in 1906.

A complete cure of a malignant sarcoma of the eye, which had lasted four years, and had been operated on twice without success, was effected by the application of the X-rays, as reported by M. Beclerc at a recent meeting of the Société Médicale des Hôpitaux.

The use of an umbrella in the sick room as a means of purifying the air, is suggested by Dr. A. C. Gore. The umbrella is to be held open and jerked forcibly down. He claims that the temperature will be lowered from one to two degrees within 20 to 30 minutes.

A remedy for the "sleeping sickness," which is causing such ravages among the natives of Uganda, has been found (according to a report of the Colonial Society of the Upper Congo) in an infusion of a species of wood, called "iboga," very common on the Gaboon.

The study of the history of medicine is the object to which a legacy of 25,000 pounds sterling left by the late Professor Puschmann, of Vienna, to the University of Leipzig, is to be applied. It is proposed to found a historic museum of medicine, and a special seminary for training persons in medicohistoric research and in historiography.

A warning to youth against a medical career has been issued by the organized profession in Germany. It points out the overcrowding of the medical profession in comparison to the population, and depicts the material depression prevailing in its ranks from the lack of restrictive legislation against quacks, and of regulation of the sickness insurance societies.

The far-reaching results of a printer's error is shown by the following from the *British Medical Journal*: At the British Association a paper by Dr. Adamkiewicz, with the title "Ist der Krebs Erblich?" (Is Cancer Hereditary?) was on the program. "Erblich" was misprinted "erdlich" (earthly). The *Times* announced that a paper had been read by Dr. Adamkiewicz on "Is the Crab a Sea or an Animal?"

An entirely new cure of whooping-cough in children has been recently attempted by Dr. Alois Monti. The children are brought once a day into a room where

they sit for three-quarters of an hour to an hour in the midst of camphor and naphthalin vapor. No bad results have as yet occurred, but on the contrary the lighter cases have been entirely healed in from three to four weeks, and the more severe in from four to six weeks.

Skyscraping buildings are doomed, according to the prophecy of Prof. Louis Wuarin, of the University of Geneva, who delivered an address on "The Future City," at a recent session of the International Congress of Arts and Sciences. Prof. Wuarin maintained that the individual should be subservient to the community, and declared that, from a sanitary consideration, high buildings were detrimental to public health, and would, therefore, ultimately disappear from the topography of the future city.

A most extraordinary memory for figures is that of a certain Dr. "K," who was reported by Professor Mueller, of Goettingen, at the Giessen Congress of Physiology, to be able to work out within a few seconds the squares of any numbers of five figures given him. He was also able to learn by heart and repeat a row of figures 204 in number within twelve and a half minutes. Prof. Mueller asserted that no such memory for figures had ever been known, the record having been 204 figures in seventy-five minutes.

Medical Socialism, according to the *Medical News*, has been carried to a remarkable length in the Canton of Zurich. The canton has decided to levy an annual poll-tax of 86 cents, to be called the Zurich medical tax. It will produce \$100,000 a year, sufficient to maintain forty or fifty qualified doctors. And in return for paying the tax any inhabitant will be entitled to call in one of these doctors at any moment, to claim medical attendance free of charge all the year round. The medical profession could be relied upon no doubt to oppose any such scheme. Unless the state doctors adopt a bearish repulsiveness of manner in self-defense they will have work enough.

The oldest medical works in existence are those of the Chinese, and date back to nearly 3,000 years B. C. Then, as now, they divided their subjects under the captions of healing, cooling, refreshing and temperate. They have everything divided into classes, and their prescriptions are classified under seven headings, as follows: (1) the great prescription; (2) the little prescription; (3) the slow prescription; (4) the quick prescription; (5) the odd prescription; (6) the even prescription; (7) the double prescription. These are applied under four special circumstances and conditions, which in their turn are classified. Fire is an agent in which they have great faith as also they have in mineral waters.

Dr. William Lord Smith, of Worcester, Mass., according to a report from that city, has received the honorary appointment of physician in ordinary to the Shah of Persia. Dr. Smith, it is said, was caught at Ispahan during an outbreak of the plague. He was detained much against his will in quarantine, and while on his enforced visit prescribed for the natives with great success. About this time the Shah came down with malaria, and hearing of the American and his marvelous cures, sent for him. The invitation was a command, and Dr. Smith made the 210-mile trip on a camel. He cured the Shah and the G. P. made him physician in ordinary, and urged him to remain at the court permanently.

THERMOTAXIS AND NERVOUS INFLUENCES IN THE PRODUCTION OF FEVER.

BY THEO. J. JACQUEMIN, M.D., UNION HILL, N. J.

A MOST remarkable instance of a self-adapting mechanism is the faculty possessed by our organism to maintain an average temperature under all circumstances of external heat and cold, of torrid and arctic zones, of summer and winter, of sunshine and darkness.

The sensations of heat and cold are no measure of the bodily temperature, not more so than the number of pulsations or respirations can give a correct idea of the body's heat: this can only be given by the thermometer, the introduction of which by Wunderlich, has constituted one of the greatest achievements in clinical medicine.

The mechanism by which the body's temperature is kept uniform, is a co-operation of a number of factors. It is an equation of which the two sides are the amount of heat produced in the organism and the amount of heat dissipated.

In cold weather, warm clothing, fires and contraction of the superficial blood vessels limit the loss of heat; there is also an increased production of heat in the way of physical exertion, and through more active circulation in all the internal organs, especially brain and liver, their greater functional activity being attended with a large amount of heat by metabolic combustion. When it comes to be an adaptation to great solar heat, it is mostly in the way of regulating the heat lost. The vessels of the skin are dilated and muscular elements relaxed; perspiration flows and the evaporation of the sweat consumes constantly heat. Brain functions and digestion run low and fatty substances, so readily shared in during cold weather, are partaken of most sparingly. This conservative adaptation is controlled by the central nervous system.

The vasomotor nervous mechanism is an integral part of this nervous control of the body temperature. But physiologic experimentation as well as clinical evidence go to show that there are still higher and more commanding centres in the nervous system than those inducing the vasomotor effects and to which we shall refer later on.

The internal heat of the human body is from 98° to 99° Fahrenheit, and the healthy range in different individuals or in the same individual at various periods of life, in various circumstances of exercise and repose, sleeping and waking, is not more than a degree and a half below or above the mean.

This statement includes the fact that our organism is not regulated in such absolute way, as to maintain always a "constant temperature," inasmuch as it is found that in a person of normal condition, living in a room of unchangeable temperature, if a thermometer be placed in an internal organ, it indicates regular oscillations of one degree and 8-10ths in the twenty-four hours; but our organism is capable of automatically preventing variations of more than 9-10ths of a degree above or below the standard temperature, which we call practically constant. Our body is a thermostat more flexible, it is true, but far more sensitive and complicated than those constructed for our laboratories and other industrial purposes.

An elevation of the internal temperature moderates

combustion; and a lowering of our bodily heat has the effect of starting up the furnace. But what our thermostats in industrial lines are not capable of doing, our body does: when it gets heated, and cannot moderate the source of the heat, it increases the amount of heat that is lost; and when it is cooled off, it checks the waste at the same time as the combustion is made more active. Furthermore, this double method of regulating receipt and expenditure of caloric, becomes active when the body is merely threatened with a disturbing influence in consequence of a change of temperature taking place in the ambient medium, which might have a tendency of making the organism hot or cold. The thermo regulation or thermotaxis is, therefore, both curative and prophylactic.

The temperature of the exterior air brings to our cutaneous nerves a sensation inviting us to cover or uncover ourselves, but especially determines unconscious reflexes in the nature of automatic body defenses. Amongst those reflexes some restrain or actuate heat production by increased metabolism or lowering of vital processes, as the case may be, others bring into action or put a curb on dispersion of heat.

External cold increases production of Co^2 and urea, intense cold causes shivering and muscular tremor, both causing internal combustion and more internal heat: On the other hand, external cold brings about a spasm of the superficial capillaries, less blood is cooled off at the skin surface and cutaneous evaporation is suppressed. These two varieties of reflex actions answer admirably the purpose of protecting the organism against the deleterious influence of external cold.

Unfortunately, the reflexes are less powerful to protect us against external heat. When the exterior air gets warm, interstitial combustion becomes less active, the superficial blood vessels become dilated, circulation and respiration become accelerated, diaphoresis is established and the blood carried to the surface in greater quantities is more quickly cooled by the contact with the air. More particularly, the blood loses heat by pulmonary and cutaneous evaporation, and this loss is sufficient to prevent the body from getting heated, even if the exterior air is warmer than the body; but, let the air be warm and moist, the evaporation cannot take place and the result of the conflict between heat and the heat-regulating powers is reversed: increased circulation and respiration still further heat the blood, and, unfortunately, too often go to illustrate the shortcomings of thermotaxis in that part of its mechanism that is to protect us against external heat. The external heat under the stated circumstances becomes internal heat, and this brings us up to the study of the defenses set up by the organism for the protection of normal temperature against internal cold and internal heat.

As far as both of these agencies are concerned, the reflexes have nothing whatever to do with defending us against them.

Professor Richet, of the Paris medical faculty, by most thoroughgoing physiological experiments, has demonstrated that the central temperature of the body must fall as low as 93° F. before chills and muscular tremor are induced by central nervous agency. Carbonic acid increases in quantity and the temperature rises, muscular contraction coming to the aid of increased metabolic combustion. Under these circumstances, the cut-

ting of the spinal cord suppresses the chill and tremor in the trunk and the extremities, while it persists in the face: hence, the central cold alone is responsible for the chill which is essentially induced by the heat-producing centres of the encephalon. These centres are located in the corpus striatum and the pons varolii. Not only does clinical medicine corroborate these findings by Professor Richet, but they are substantiated by the results obtained by other investigators like Hale White, Jacobson and Goodhart.

Internal heat brings into play the central mechanism of heat-dissipation or thermolysis: Warm vapor or water baths, warm air at the exact temperature of the body, but saturated with humidity produce a rapid elevation of internal and central heat, and as a consequence, the heart is accelerated, more blood is brought to the surface of the pulmonary vesicles and to the integuments, the respiration becomes more active and we have a phenomenon properly called "thermic dyspnea." This dyspnea is due to the heating of the thermolytic centres and immediately an abundant diaphoresis sets in as a consequence of the excitation by the warmer blood of the respective centres situated in the cord and the medulla oblongata.

Now, then, besides a reflex production and dissipation of heat, we have to deal with a thermogenesis and thermolysis of central nervous origin. This, however, is not all: Physiologists of to-day connect these centres with a third one, the heat-regulating or thermostat centre, which has the all-important function of controlling heat-production, and heat-loss, in such manner that the bodily temperature may remain equable under normal conditions. This centre is located by the authorities in the cortex of the encephalon.

Thus far we have seen that reflexes protect us very well against external cold, while they are very inadequate as far as peripheric heat stimulation is concerned; we find on the other hand, that the central temperature must be lowered five degrees F. before the thermogenetic centre induces a warming chill, while an elevation of internal heat by vapor bath, for instance, is sufficient to induce a cooling perspiration as soon as it reaches 3-5 of a degree F. above the average temperature.

It would be erroneous to admit that only those influences which we have quoted now play a rôle in thermic functions of the organism. There are to be considered all those agencies, chemical and bio-chemical, which, circulating in the blood, affect variously the thermic centres.

The marvelous mechanism of heat regulation shares, like all parts of our wonderful organism in the fragilities to which human flesh is heir.

There are so many ways, functional and organic, by which the automatic centres of heat-production and dissipation are influenced, reflex modifications are induced by so numerous changes in our surroundings, ranging from unusual dry and moist cold to extreme dry and moist heat; there are so many chemical agents, toxins, as well as alkaloids, which by their admixture to the blood circulating through the nervous centres leave their functional impress, that there cannot be any wondering at the statement that the nervous mechanism to which we owe our average body temperature, is constantly the recipient of noxious influences, the constant and successful warding off of which

is the price for undisturbed health and well-being of the individual.

Such being the case, is it not evident that we may trace a considerable part of the illness and mortality of the globe to a marked and conspicuous failure of the thermotaxic centre in its adaptation to external and internal, physical and chemical circumstances?

It is with good reason that the poet asks,

*"But errs not nature from its gracious ends,
From burning suns when livid death descends?"*

Undoubtedly the heat-stroke is the direct result of an upset or a desintegration of the thermotaxic centre. Either the disorder is shown in sudden depression of the heart's action, as among soldiers marching in the sun, or the effect of atmospheric heat and humidity is a state of venous engorgement, thermic dyspnea, indicating a profound vasomotor paralysis, ending in death by asphyxia or finally, the heat stroke leads to an attack of thermic fever coming on a few hours after the exposure, having a prodromal stage of malaise and a rise of bodily heat to 108° or even 110° F. with the heart and lungs embarrassed, profound disturbance of the brain and a fatal termination with venous engorgement and asphyxia. All these forms point to a profound disturbance of the nerve centres. Furthermore, we find in tropical fevers of all kinds, the greatest indication of failure or imperfection in the adaptation of man's heat-regulating centres to his surroundings.

Throughout the whole inter-tropical zone, fever in its various forms stands for almost as much sickness and mortality as all diseases put together.

On the other hand, exposure to harsh and unusual degrees of humidity and cold, especially in the enfeebled and ill-clad populations, produce pneumonia and rheumatic fever, other errors of the thermotaxic mechanism, because its weakened centre is too readily overcome by the thermic reaction which the cold induces.

After those general considerations of extreme heat and cold in their onslaught on the heat-regulating centre, let us develop some minor points of interest and practical value in clinical medicine: In diverse pathological conditions, like influenza, a morbid poison frequently prevents dissipation of heat by diaphoresis, in spite of high central and peripheric temperature and many degrees above the 3-5° F. which induce physiological diaphoresis, as we have seen before.

In the same person, who, under normal conditions, perspires freely in a region of the skin, the temperature of which is 96° F., while that of the centre is 98.4-5° F., we may find in the course of an attack of influenza the skin remaining dry with a temperature varying between 99 and 102, that of the rectum being from 100 to 103°. An antagonistic poison to the toxin of influenza, for instance, *antipyrine* or *pilocarpine*, will upset this disagreeable condition and establish diaphoresis with corresponding reduction of external and central temperature.

It is a well-known fact that automatic heat regulation is more powerful in preventing the disturbance of temperature than in bringing about normal conditions.

Nature, in her wisdom, here once more tries to teach us that prevention is far more valuable than cure, and that under all circumstances, the wise guidance she is

anxious to give us at every step emphasizes the necessity to live up to certain laws rather than restore time and again natural conditions, when they have once been disturbed.

The nerve centres to which this great function belongs are able to resist for a long time the continuous action of disturbing influences, their vigilance and activity are unceasingly on the alert until a moment arrives when they are exhausted by the contest and practically routed.

Does not this explain to our utmost satisfaction why it is that in such individual the incubation stage of some infectious or contagious disease is short, in such other individual protracted? It is a question of nerve-power of lesser or greater resistance depending on the integrity of the nerve centres that control our body's temperature.

In cases of starvation, the temperature remains almost normal till the very last day, when it quickly falls 4° F., and at the moment of death from inanition, it takes a sudden tumble of 23 to 24° F.

Inversely, when animals are placed in an overheated medium, their temperature after reaching 104-106° F., remains at this point for a long time before going beyond, and all of a sudden, the resistance in the nerve centres is overcome, the temperature rises to 113° F. and the animal dies through the physical phenomenon of albumen coagulation. As far as the length of time is concerned, during which a successful struggle against the causes of hyperthermia takes place, much depends on the energy possessed by the individual nervous centres.

Therefore, in weak and enfeebled persons, in those that are thoroughly exhausted or suffer from chronic affections or acute diseases of long duration, in convalescents new or recurrent attacks of fever are seen to occur in consequence of influences, which in a healthy subject, might possibly excite increased calorification, but certainly would not succeed in raising the temperature of the body. In this manner we are able to explain the singular fact that at the period of decline of *typhoid fever*, the same cause will, as the case may be, induce sometimes a *syncope*, other times, a *febrile manifestation*. It is for this reason also that in the course of convalescence, the elevation of temperature which occurs each time the patient rises, gradually becomes less intense in proportion as he is enabled to assimilate more food, eat more and thus gain more and more physical strength.

In the very same way, when a person first engages in one of the various kinds of public social functions or sport, the fever determined by nervousness, fear, or by muscular exertion decreases with growing self-reliance, self-confidence or with growing strength from perfect and continued training: A physiological equation is brought about and the elevation of temperature which was the effect of inequality between the nerve force supply of thermotaxic centres, and the demands made on those centres by unusual exertion or unusual mental excitement, will not be noticed any further. In like manner is explained the circumstance why a strong man only presents feeble oscillations of temperature, the nocturnal decline and the diurnal elevation both being but little marked, so that his thermic line is stretched and closely approaches the straight line, while that of the weak and feeble man shows marked oscillations. But give to the latter some drug which is able

to instill a little nervous energy into his system, such as quinine in moderate quantity, and his thermic line will become stretched.

All these and many similar facts have brought forth the nervous theory of fever which was formulated some ten years ago by Professor Hale White, of London.

This theory supposes that the rise of temperature may be caused by direct interference with the thermic centre or by circulating toxins or by peripheric stimulation reflecting on the heat-producing, heat-dissipating, and heat-controlling centres.

With regard to peripheral impressions, we know that the passage of a kidney stone or gall stone often causes a rise of temperature, and certainly, during some cases of confinement, we all could find a slight elevation of temperature. Every surgeon knows about the fever heat that often follows fracture of the tibia, humerus or femur. Concerning fever-producing substances circulating in the blood, we know that atropine and caffeine will send up the temperature if given in full doses and it is more than likely that in all specific fevers it is the toxin that causes the increase of bodily heat by its influence on the heat-producing and heat-controlling centres. Finally, we have the temperatures which are directly due to disorder of the heat mechanism, and this is the most interesting group helping to form the very foundation of the *modern theory of pyrexia*: There is considerable experimental evidence that damage to the *cerebrum* will cause a rise of temperature; it is also certain that one part of the central nervous system presides over loss of heat, while a third centre balances the two, so the temperature remains practically constant within narrow limits. It is extremely probable that the chief centres for thermogenesis or heat-production are the "*corpora striata*" and "*pons varolii*," because damage to this part of the *cerebrum* produces a considerable rise of temperature. The regulating centres are located in the cortex. Experiment and clinical observations lead to this admission.

If one corpus, striatum only is damaged the temperature will be higher on the opposite side of the body. So in hemiplegia we find the temperature raised in the axilla of the paralyzed side.

In the case of cerebral hemorrhage, there may at first be a considerable fall of temperature owing to the severity of the shock, but as the effects of this pass off, the rise of temperature due to damage of the corpus striatum or pons varolii shows itself.

In the case of sudden damage to the corpus striatum, the rise of temperature takes place quickly and within twenty-four hours attains its maximum. It then slowly falls, till in a few days, the normal point is reached again; thence it reaches a subnormal degree for a few days and returns gradually to the normal body heat.

Clinical medicine affords proofs that injury to the cerebral cortex causes rise or can cause rise of temperature.

In meningitis, as is well known, the temperature may be very irregular: often it runs very high, often it drops very low; in a few hours' time we may notice a change from 97½ to 108° F.: this is easily explicable if we believe that the rise of heat in this disease is in part, at least, due to the excitation of the cortex by the inflamed meningeal coverings impairing the regulating function that ought to control the heat-producing

mechanism of the corpus striatum and the heat dissipation in cord and medulla oblongata. Next we will consider epilepsy, chorea, and hysteria, three functional diseases of the cortex and brain substance.

During a fit of epilepsy, the temperature is apt to rise several degrees; in the condition of status epilepticus, the temperature may run as high as 107° F.

In severe chorea, temperature is often raised several degrees; the fever of hysteria is a common occurrence.

To further illustrate the rôle of nervous influences in the production of fever, let us briefly call to mind some clinical facts which are undoubtedly familiar to all of you:

Did it never strike you that fever patients, when admitted to the hospital, in four cases out of five, present a temperature higher by a degree or more than it was before admission, and than is found on the next or the following days? You also certainly noticed that visits to fever patients have the effect to immediately raise the temperature. It is also generally known that unseasonable ingestion of food in the course of continuous fever increases its intensity. Consumptives returning from a promenade, even if quite a short walk only, often have a temperature three degrees higher than when they started out.

Lastly, emotional and intellectual perturbations are sufficient to cause a recurrence or a new manifestation of fever. Take your patient recently admitted to the hospital, and, all things considered, the analysis of the case goes to show that mental, emotional and volitional perturbations as well as bodily weariness have the principal share in the production of this attack of fever.

Emotional nervous fatigue caused by the regular visiting days and principally induced by conversation are the determining causes of many attacks of fever.

There are cases to which we have alluded already and where there is no other explanation of the higher temperature than muscular effort, as in the initial stage of convalescence after typhoid fever—when often the slightest attention the patient pays to his attire or his toilet, is immediately followed by a marked rise of temperature,—the heat-regulating centres being still in a state of extreme weakness and unable to check the furnace started by slight muscular exertion.

As conclusion I should state, that if a strong nervous system is able to protect the organism against thermic variations by keeping the integrity of the heat-producing and controlling centres, nervous weakness renders the agents of protection less vigilant and less efficacious. Under conditions of nervous weakness, effects which escape detection in a normal state are observed with a magnifying glass, as it were—forces the very existence of which has been doubted, may then be seen openly at work. A weakened nervous system is indeed a particularly sensitive reagent for fever-producing agencies, and it is perhaps with good reasons that many diseases like heat-stroke, rheumatic fever, typhoid fever, pneumonia, intermittent and remittent malaria are called "nervous fevers," because they may be regarded as the outcome of errings and deviations of weakened nervous centres. A strong nervous system is able to protect the body against thermic variations and consequently disturbed metabolism, while nervous debility surrenders the organism to its numerous and invisible enemies.

NARCOSOMANIA, WITH REPORT OF TWENTY-ONE CASES.

BY THOMAS HORACE EVANS, M.D., PHILADELPHIA, PA.

PART II.

ALCOHOL.

THE narcosis mania for alcohol is called dipsomania.

The prevalence of this, in comparison, is very likely increased on account of the accessibility of the poison.

Three classes of sufferers are evident: (a) Those in whom drunkenness, if noticed, would not excite surprise—as in laborers; (b) those in whom drunkenness in secret is possible at intervals on account of their ability to leave home and go on concealed debauches; and (c) those in whom any drunkenness would be very difficult to conceal, and who cannot leave their occupations, except for very short periods, e.g., physicians in moderate circumstances, etc. This last class, a piteous one, may not long continue using alcohol, but shifts to cocaine. The second class presents the typical instances; men of wealth, or position, who leave their surroundings suddenly, to return after haunting vile dens and outrageous company all unknown to their friends, when the paroxysm relents. The first class may contain open cases under the aspect of inebriety, laziness or perversity. In those patients having the chance to go to extremes and exhaust the morbid impulse—while preserving reputation—the disease may last indefinitely without the alcoholic intoxication producing the damage it does in cases in which a constant, but restrained use of the poison is the habit. Patients of this class live in the humid, distressful pressure of a moral atmosphere choking on itself, and unable to become ill enough to effect a reaction.

The effect, on normal people, of alcoholic intoxication is the reverse of that in cases of dipsomania. The first taste, each time, to these latter is as the breath of heaven and the food of the gods. The entire being is transformed. The nervous irritation vanishes. The countenance—before, strained and worried, clears and strengthens—although in short order, there develops an increasing immoralization apparent in every feature.

Then, the face becomes tense and the expression weighted. Normally, slight doses produce exhilaration, and, if largely diluted, soon become soporific. The narcosis of the dipsomaniac is one of lower centres and is, in effect, a reduction of the power of peripheral and centric association and of the sense of conflict which goes, ordinarily, to make up the possibilities of higher mental organism.

With ascending doses, the unfortunate victim attains a condition of mental aloofness close to organic separation; until a mighty revulsive effect delivers him. If, on the other hand, a completed debauch is forbidden, the repeated small doses at close intervals, because this revulsive effect is not attainable, continue the agonizing imbalance and a state of mind results that borders on double personality, but wavers to and from it to the patient's confusion; in these cases the peculiar habits are more difficult to cure than in those of open, shorter outbreaks. The solitary debauch is more dangerous, also, because double personality is more commonly an effect.

Case I.—X. Y., physician, aged 50 years, of Polish and German parentage. Came early to this country and edu-

cated himself, with a struggle on account of lack of means. Is of thin, nervous build, about 5 feet 10 inches in height. Small, long bones, brachycephalic, uncertain mandible, eye-pupil dark, ears delicate and slightly protruding. Voice incisive, at times resonant, at times flat, always penetrating, and of low, shifting register.

Began to use alcohol in poverty—was always nervous, subject to chills and other crises. A dozen years ago had to move his office because his failing practice was evidence that his clients were aware of his constant tipping, and thought him unreliable. A mighty effort steadied him, and after four years he was able to return.

Now, he is again losing control of himself. A peculiarity, one night, revealed his condition to me. What I had laid down at first to bashfulness, or lack of desire to meet me, I found out was the result of shame and fear lest I should distinguish his trouble. Within a few months he has been so unfortunate as to lose his wife. I am afraid that in addition to alcohol he has taken to cocaine, or morphin; but as to this I am not sure.

Case II.—N. M., young girl of 25 years. Brother was in the liquor business and would frequently bring home choice wines for the use of the family. She had been educated in a convent. I do not think that she realized the nature of her trouble. Became fascinated with the effects of alcohol. Had always been of a nervous disposition, of an intellectual and introspective temperament. Was skillful in drawing and painting, but had never been able to do completed, satisfactory work.

In her room at home, arranged for a studio, began to drink in steady amounts, allowing the family to believe her working in seclusion, or, sleeping.

Many efforts to cure her failed. She spent some years in an institution, but on release, again turned to the narcotic. A sexual element added difficulty to cure. The solitary indulgence in the poison, and the dreaming alone over it had formed a state of mind in which ordinary and normal life became supremely distasteful, even distressing.

Eye-strain exists, which has never been attended to. I believe a change of scene, and occupation, earlier, instead of the institution with its ill-effect on composure, and unpleasant associations, would have given much better results. I am opposed to confining narcosomaniacs in places where they may come in contact with each other, or with other disagreeable nervous cases. Neurotics, such as they usually are, will react badly.

Case III.—E. D., aged 45 years, twice married, now living a dissolute life.

She has exerted a continual influence for evil over the neighborhood, and corrupted, successively, two young couples who had lived in the next house.

She is thin-featured, high-strung, of neurasthenic and low intellectuality, dolichocephalic, of dark complexion, and bilious appearance. Speaks in a peculiarly penetrating voice. When narcotized, it has a ring approaching the metallic. For days she will continue the heavy use of alcohol in the form of beer, her men friends "rushing the growler" until the revulsion, when she will declare she is going to reform, and move to the country, where in new associations she may start life over.

Then the paroxysm returns.

She will sleep in the afternoon, an hour or so, unconscious of anything, so deep is exhaustion. A couple of neglected children play in the dining-room, seizing the organ and pounding out a melancholy tune with a humdrum base, and dancing. They are miserable, but do not know it.

Evil associates of the woman then enter. The orgy is begun, in which Mrs. D. is the presiding genius. All of them usually succumb soon to an alcoholic stupor, but she never falters—her voice leads on the affair, echoes of it carried on the drunken conflict. For days this may go on, with variations. A man who is recognized as her husband, may break off now and then, for a change, and do a little work; from this a dribbling income would appear to sustain the household. The young people next door, drawn into the carouse, go shares.

All this time one member or other of the party may retire, but not Mrs. D. The children huddle in corners, and the neighbors sometimes feed them. Loud cries and indecent language float on the air at all hours. I am surprised that the neighbors permit her to remain, without protest. With all her degradation, her walk is marked by queenly poise. Narcosomaniacs must not be confused with

people of merely low and brutal instinct. In her few lucid intervals she is sympathetic and even appreciative. Yet the wreck of herself that pervades the dwelling is but the shadow of an intelligence.

Case IV.—J. D., aged 42 years, of Scotch birth, married, and with a family of four children, who exhibit unusual intelligence.

I reported this case, with another similar one, at length in the New York Medical Journal (to appear).

They illustrate cases in which a mechanic, and a weaver have become dipsomaniacs. Mr. D., as a young man, has had free access to the narcotic. Now, the habit is so firmly fixed that his normal periods have been reduced in length and frequency; although between them he does good work, and can always obtain a job. Shame for his conduct is not enough to prevent the recurrence of attacks.

In spite of repeated trips to prison and the reformatory, which his people have managed to secure, the disease continues.

Case V.—F. X., aged 58 years, a prominent business man.

For years this man would have the habit, once in six months, or at longer intervals, of disappearing from home without a word of warning. His people would hear of him, when the paroxysm had spent itself, by a telegram to send him some money so that he would be able to return. In lucid moments, a perfect gentleman, agreeable, genial and fascinating in manner, when under the effects of alcohol, he becomes quarrelsome, vindictive, and even liable to do murderous assaults or other vicious crimes. Happily, with later years, he is overcoming this fearful tendency to narcotics, and I believe that there have been no paroxysms within the recent five years.

Case VI.—C. R. B., aged 24 years, prostitute. A girl of charming presence and magnetic personality. General physique is good, but an undercurrent of neurasthenic irritation is apparent. Has been leading an immoral life since the age of 14, when she ran away from home and school.

Skeleton well developed and feminine in type. Brachycephalic, ears delicate, mandible distinctive and determined, sensuous mouth and nose approaching the Grecian. Voice well pitched in middle register, round, soft, full. Eyes brown and expressive.

For weeks at a time places herself under the influence of alcohol in the form of champagne—expense being no consideration. In these intervals without losing her attractive personality, there is an indescribable blight of the animal which shows on her. She says she cannot resist doing what she does. Her mode of life in itself, does not disgust her; but certain inevitable consequences of it do. I am convinced that no argument or opportunity might induce her to reform. But I think, in this case, in addition to the moral degeneracy which is undoubtedly at the root of her habits, there is an element of sensitive intellectuality which at once repels and attracts her to the narcotic state. She deliberately refuses opportunities which may present themselves for at least partial betterment, in order to pass life under the thrill and obliviscence of its ruinous charm.

Case VII.—T. P. X., aged 22 years, a student. Under the effects of alcohol writes verse rapidly and correctly—but there is always lacking the completed touch and finish of normal genius. Ideas reached at this time are crude, unbalanced. He tells me, however, that in the normal condition he has been able to work up these ideas afterward in better form.

He is of a nervous, irritable type. Skeletal development is delicate, rather brachycephalic, with weak mandible. Speaks in an uncertain middle register of slight volume, and enunciates with almost epileptic rapidity when in the state of approaching tension. He is easily wearied and these neurasthenic variations occur plus and minus in the same day. By temperament he is introspective, emotional, but not religious.

He has never yet gone to any great excess, but I consider him in danger of secret but continued tendency to the use of the narcotic influence. He realizes his danger and is making an effort to build himself up. Lowered vitality is often an element in the case.

Here, as in other instances, when nervous tension rises, and the restlessness and indirection of the patient shows what is near, forced feeding and especial attention to hygiene will ward off much danger. I think the cerebral temporary anemia incident to digestion has a beneficial and normal narcotic effect, and in cases due to centric as-

sociative difficulties such treatment avails. But if there are irritative elements, such as actual lesion or sensory disturbances, the forced feeding may not result successfully as hoped; in these cases definite symptomatic treatment must be resorted to.

Without contrasting the effects of alcohol on normal individuals; briefly, in the neurotic, there is a general disorganization in which form, function, and morals suffer in a distinctive manner. Regard for convention is eliminated. The animal senses and appetites are the burning goal.

After a variable period, during which psychic pressure rises, and the body clangs with a conflicting passion, one taste of alcohol brings on the feeling of harmony—this is a shock of blissful descent to rest where conscience no more entreats and scruples are nothing.

The whole body sings in relief as the higher self dissolves.

Not alone the brain but every organ shares in the ecstasy. Yet it is a brutal ecstasy. Shameful passions dare to walk openly. In cases whose neurosis is partly the effect of actual irritation, or reflexes, for a time with their disappearances, and while yet the morals struggle to be acknowledged, the patient may do some useful work—as in painting, literature, or business. Not for long. Disorganization proceeds. The poem deteriorates, the business fails to urge interest. Then the victim surrenders and debauch begins.

All the fatuous excitement, the pseudoethical aspiration, is lost in a tumult of passion which leads over into physical excesses, gambling, and general moral riot. Yet the patient cynically looks backward to his former state; in the beginning of a succeeding paroxysm to deceive himself that he will do wonders in the stage of exaltation, and keep clear of the degradation into which, nevertheless, it is his fate sooner or later to fall.

When the paroxysm is at its height, metabolism is terrific. Normally great thirst does not show itself until after the debauch, but with the narcosomaniac large quantities of water are almost continually sought in the stadium of an attack. The patient secretes and excretes for a time prodigiously. Yet the appetite is lost, and on account of weakened nutrition many diseases may here find lodgment for which he is to suffer.

As the narcosis is general, so is the reaction.

On coming out of a debauch the patient is dangerously neurosthenic. His weakness is his salvation, however.

With continued metabolism, nervous association might throw him into convulsions, or insanity. He must rest up and assimilate, gradually reducing nerve tone; reaction may advance to a subsequent neurasthenia, and in this condition the patient feels again the drawing to the narcotic.

Aside from its accessibility, alcohol appeals to those whose temperament desires companionship in debauch—for the very companionship. Gambling, horse-racing, and other immorality requires the crowd. I believe solitary excess in alcohol is such *faute de mieux*.

Our next subject will be morphinomania.

Labor Unions Fight Tuberculosis.—In Chicago, office janitors, cigarmakers, garment workers, and others, have offered the co-operation of their organizations. A number of unions in New York City have thus worked for a long time in co-operation with the Charity Organization Society.

PATHOLOGIC PHYSIOLOGY VERSUS PATHOLOGIC ANATOMY.

BY BYRON ROBINSON, B.S., M.D., CHICAGO.

PATHOLOGIC physiology attempts to instruct through disordered functions of the living subject. Pathologic anatomy attempts to instruct through changed structure in the living and dead subject. In practice disordered functions, or pathologic physiology, are manifest a hundred fold more than pathologic anatomy. The old physicians recognized pathologic physiology under another name, as functional or sympathetic disease. Among the first to discuss pathologic physiology from a scientific or systematic standpoint was Conheim, as found in his celebrated general pathology. Pathologic physiology is characterized by an abnormal course of the life of an organ or series of organs. In what does this abnormal course of organs consist? We may designate as normal living processes what is found in the vast majority of individuals in man and animals when the individuals are considered healthy. It is granted that the function of an organ has normally an extensive range of healthy action. For example, the quantity of uric acid in the urine of the genera avis, carnivora, herbivora and bimana is extremely variable. Perhaps man would not live long with the quantity of uric acid which birds habitually secrete. Each genera and perhaps species are a law for themselves as regards the functions of organs possessing extensive variations of organ functions without being pathologic. Pathologic physiology should be taught with more exactness in the colleges, so that the graduate may not be compelled to learn it at the expense of his patients. Pathologic physiology should be comprehensively explained to students, as it enables them to secure a general view of organized viscera—as well as the vicarious action of viscera. Besides it aids the practitioner to diagnose disease when no pathologic anatomy demonstrable exists. For example, there may be sugar in the urine with no demonstrable renal pathologic anatomy. The liver or pancreas are the culprits of pathologic physiology in diabetes yet the phenomenon of sugar in the urine appears to rest in the kidney. When a patient is attacked with "neurotic spells," the evacuation of a large quantity of clear urine aids in diagnosing the case—it is a neurosis manifested by vicarious action through the kidney—it is pathologic physiology of the kidney, but no renal pathologic anatomy exists.

The frequent wild and disordered peristalsis, absorption and secretion in the child's digestive tract cannot be based on pathologic anatomy—it rests on disordered functions, on pathologic physiology. The child recovers from his diarrhea, his disordered peristalsis (belly-ache) and vomiting so rapid that insufficient time existed for pathologic anatomy. Pathologic physiology combines rational views of living organs—more than that based merely on pathologic anatomy. For example, when the pathologic physiology of the kidney is studied, the instructor must take rational and comprehensive views of the renal viscus. Pathologic physiology of the kidney takes into account the condition of the kidney, the constituents of the blood and the volume of blood that streams through the organ. The discussion of these three subjects in regard to the kidney lends a comprehensive view to the student in making a diagnosis on the living subject. Pathologic

physiology teaches that the circulation of an organ is a fundamental factor in comprehending diseased conditions. The teacher who does not comprehend the varying states of circulation of the female genitals in the different stages of pueritas (quiescent), pubertas (development), menstrual (functionating), gestation (functionating), puerperal (involution), climacterium (subsidence) and senescence (quiescent) makes a defective gynecologic teacher. No organs except the kidney offer such an extensively varied base to illustrate pathologic physiology as the female genitals. The circulation of an organ quotes its value in the annual economy, it rates its function. Each organ is supplied by arteries which have automatic (visceral) ganglia which regulate, govern the volume of blood which flows through them. The automatic visceral ganglia tell the story why the volume of blood changes so much in different conditions of the organs—when the parenchymatous cells of an organ functionate as the liver during digestion, the uterus during gestation, the cerebrum during thinking, the blood volume is increasingly directed to the organ through the automatic visceral ganglia dilating the arteries. Hyperemia indicates the functionating brain, kidney and genitals, and these organs occupy vast considerations in practice. Pathologic physiology is the better friend of the practitioners in their treatment, than pathologic anatomy. Rational medicine alone will stand the test of time; it will be the medical Amazon into which flows all lateral issue, tangential fads, and distorted views of the unbalanced and knaves. Rational medicine must be founded on the solid ground of nature to stand forever. Hence, students must be taught to recognize pathologic physiology—disordered function of organs—and not wait with idle hands until the destructive pathologic anatomy,—disordered structure of organs—has appeared on the scene. Incipient reflex actions are manifest as pathologic physiology—disordered peristalsis, absorption and secretion—not as pathologic anatomy. The relation of the tractus genitalis to the tractus intestinalis through reflexes especially in menstruation or gestation does not rest on pathologic anatomy but on pathologic physiology. In the vomiting of pregnancy, no demonstrable pathologic anatomy exists in the tractus intestinalis—the emesis rests on pathologic physiology. Pathologic physiology aids to complete a diagnosis as fat and the stool suggests pancreatic disease, sugar in the urine suggests hepatic or pancreatic disease. Will the teaching and understanding of pathologic physiology aid the student to execute more rational and successful practice? Yes. The comprehension of pathologic physiology will broaden his views of physiology, which should be returned to its supreme and basic position in medicine. Pathologic physiology will teach the supreme value of anatomic and physiologic rest in practice. It will teach him how rest (anatomic and physiologic) will control disease, especially acute but also chronic. Pathologic physiology indicates that great benefit is secured by controlling circulation, blood volume, by checking the tractus intestinalis through withholding food, controlling diet controls the blood constituents to a certain degree. A comprehensive view of pathologic physiology allows the broadest view of prophylaxis. Pathologic physiology teaches the supreme importance of *visceral drainage*, of maintaining in an attenuated solution bodily secretions. It teaches the benefit of removing the debris of waste-

laden blood by means of drinking fluids. When the patient's blood and organs are saturated with waste-laden material, he is unprepared to resist the attacks of disease, he is prepared for irritation, for reflexes or explosions. With scientific views of pathologic physiology, the correction of functional deviation with rational ideas of visceral drainage, the physician holds the key of prophylaxis against hepatic and renal calculus. With ample visceral drainage, with sufficient fluids taken at regular intervals for bodily function, the biliary and renal secretions would seldom precipitate their salts and the colloid material or ground substance of calculus would be so attenuated that calculus would not form. Pathologic physiology takes into account the composition of glandular secretion as the hepatic and renal, with the view that hepatic salts, especially cholesterine, and urinary salts, especially urates, should be maintained in attenuated solution by ample fluids that no calculi may form. It indicates that the composition of the blood is essential to health, and that its salts should not be abnormal in relations. Pathologic physiology accounts for the various reflexes and disordered functions from the irritation of waste-laden blood and the damaged functions resulting from nephrolithiasis and cholelithiasis. Pathologic physiology dictates that the ample fluids at regular intervals—visceral drainage is the great safeguard against waste-laden blood, cholelithiasis and nephrolithiasis. By the time that pathologic anatomy is demonstrable damaging structural mischief is established and not infrequently with a lifelong cicatrix. The vast majority of palpitations of the heart cannot be explained on pathologic anatomy which has been the tendency of medical progress for the past decade. Cardiac irregularity, palpitation (which chiefly rests on vigorous muscle or myocardium) is generally pathologic physiology, disordered function (excessive, deficient or irregular peristalsis) and often a nervous manifestation only. The function or the physiology of the cardiac ganglia (Remak's, Bidder's, Ludwig's, and Schmidt's) have become temporarily disorderly, pathologic, wild, irregular, yet no pathologic anatomy can be detected. It is well enough to attempt to be scientific in explanations to the student, that cause and effect are logical sequences, yet, also, to admit that we cannot detect the cause of cardiac palpitation in any existing pathologic anatomy—it is pathologic physiology, disordered functions through non-recognized channels. Pathologic physiology alone will explain the irritable bladder—the cystoscope does not reveal the pathologic anatomy. The vesical apparatus is acting unusual, it is assuming an abnormal course. I have noted such bladders for years; they afflict the possessor by frequent evacuations, by loss of sleep and broken rest. Who will attempt to explain the surface anesthetics and hyperesthesias by pathologic anatomy? They are here to-day and there to-morrow. Many a time and oft have I noted the pharynx anesthetic in hysteria—in fact, one can apply a uterine sound vigorously to the surface of the pharynx without inducing nausea or reflex muscular action. We have no more appropriate terms to apply to these phenomena than pathologic physiology, disordered function. In practice of medicine the student should be instructed in physiologic principles and not that he is always to attempt to remove changed structures by his remedies. The practice of medicine is the practice of common sense. We are to use means to an end. For example, if a frog's heart recently removed is placed in warm

physiologic salt solution, it will perform its peristalsis for a time and cease; now, I can start its peristalsis again by stimulation, the stimulant may be an icicle, electric current, a hot steel needle or a current of water or air. My profession is to aid in the resumption of peristalsis—not to attempt to discover some pathologic anatomy or changed structure, for I would waste valuable time. The mind is frequently the organ that needs the stimulant of which quacks, patent medicines, knaves and pretenders take advantage. Pathologic physiology recognizes the influence of mind over matter. The sensible physician realizes that suggestions are a powerful aid to peristalsis, absorption and secretion—to the restoration of visceral function, and though the physician may not make bold false assertions of the quack, he can suggest honest, legitimate aid and comfort to the patient. The physician can and should be the most honest man. The physician comprehending pathologic physiology becomes master of suggestions for patient's benefit. The medical profession cannot afford to leave the influence of mind over matter, the field of suggestive therapeutics to the quack and knave. The world of knowledge is our parish. To alleviate suffering and prolong life from the rational demonstrations of science is our duty. To treat the sick by any means is our privilege.

THE SCHOOLHOUSE IN ITS RELATION TO DISEASE.

BY M. M'CRODY, M.D.

MR. C. H. PARSONS, a Chicago architect, in treating of the subject of "Schoolhouse Architecture," made this statement two years ago: "Each state should pass laws requiring that every schoolhouse should measure up to sanitary standard;" in practical experience, as architect, in the designing and construction of many schoolhouses, he became firmly convinced that no permanent, satisfactory solution of the modern school building can ever be obtained even in the most enlightened community that does not comprehend the remodeling of state laws so as both to enable and require school boards to produce certain definite and specific results in school buildings.

The old-fashioned school buildings are not sufficient for present use; and the legislation that created the schoolhouse of the past is not comprehensive enough to create the needed modern school building; laws must be made broad and comprehensive enough to make possible an intelligent solution of all the various puzzling questions. Where the influences of modern progress have not been felt, some member of the school board will say that when he went to school no attention was given to the question of sanitation that seem so necessary to the health and comfort of the child in the crowded twentieth-century school building of to-day, and that in those old days they enjoyed good health; he attempts to defeat by the statement of an out-of-date fact all argument in favor of progressive schoolhouse sanitation, when in fact his statement has only called attention to changed conditions. When our fathers went to school the attendance was small and the school year short, leaving more than double the time that is now given to outdoor exercise for the upbuilding of a vigorous constitution; while we to-day must accomplish this result by artificial measures. Now children are confined to the schoolroom from eight to ten months in a year; and these rooms are not built larger

than necessary to accommodate the attendance, so that in order that the present generation of children may have the proper supply of fresh air, it must be brought to them by means of ventilation. The school population is increasing, especially in the West, faster than the taxable valuation of municipal or country property; unfortunately in almost all western states the laws limit the amount of money that can be voted for the purpose of building a schoolhouse to a certain percentage of a taxable valuation of the property of the district; in fact, in some of these states the limit is as low as four per cent., and in these same states the assessed valuation of the property ranges from 25 per cent. to 50 per cent. of the actual valuation; generally the assessor in most of the communities makes the valuation less than one-fourth of the actual value; so that when a town finds that it needs a new school building it finds at the same time that it cannot legally raise money enough to build the required building. Very few schoolhouses are built in many western towns in which the board does not have to violate the law in order to secure even the bare necessities of the building. This has been intensified owing to the fact that during the recent period of depression, or "years of hard times," as we are wont to term them, the assessed valuation of all property was put very low; and since times have changed and prosperity has again struck the western land, there has been no effort to increase the tax valuation, while, on the other hand, material and labor prices have kept advancing, until to-day it costs from 50 to 75 per cent. more to build a school building than it did ten years ago. A school board will go to see a school building that was built in the years from 1894 to 1897 and ascertain its cost; going home they decide to build a similar schoolhouse; in fact they should have just as good a schoolhouse, or even better, because we know more about building schoolhouses to-day than we did five years ago, but they try to build it, and, if the old house cost \$10,000, they find that the new one will cost \$15,000 or \$16,000, with this practical result: the board has so many children to house; they must have so much floor space in order that they may accommodate this number of children; they instruct the architect to cut out every ventilating flue in the house; to take off and out every provision for sanitation that costs anything; to strip the building of every adornment and ornamentation that goes to produce an artistic schoolhouse; and when they have finished their reductions they still have to violate the law to finish it; instead of a modern school building they have a house that is no better in its sanitary features than the buildings of twenty years ago, while in appearance it is a thing that the community and architects should deplore, yet no one is specially to blame. The board is not blamed for this, for they have done everything they could do; the architect is not to blame, for he has put into the building everything and more than the board had money to pay for; the evil is in the law of the state. New laws to enable our communities to build the schoolhouses they require are a *sine qua non*. State legislatures must limit, to a certain extent, the amount of indebtedness of a community; but a local community should be trusted in the handling of its own resources, and in this way the development of the public school system will not be stunted. More liberal legislation for the purpose of enabling boards in the villages and smaller towns to supply the necessary facilities for the proper

conduct of their schools is the need of the day. To compel legislation we find that in many of our communities the following conditions exist according to Parsons: "The architect will go into the town upon the call of the school board that is looking for plans for the new school building, and will lay before them the plans that are necessary to make a modern school building a success; he will show them the necessity for ventilation, proper lighting, sanitary closets, easy stairways, and all those things that go to make up a satisfactory school building; and he immediately finds that the board is possessed of a commercialism that prevents them from ever adopting any of these ideas because they cost some money. Laying before them the necessity of the thing in order to preserve the health of the children, he finds that it does not appeal. They frequently think that it is the foolish vagary of an architect that knows too much. Such a board is frequently found composed of the best men of our most progressive communities. Go into their stores, their workshops, their factories, or their offices, and you will find them equipped with all the modern devices of the age for the accomplishment of the best results in their special pursuits. They are in no sense ignorant; they are men of intelligence and ability; they are men, who, if they were building a house for themselves, would build it in the best way possible; but when they go on a board of education they are so conservative or economical in the handling of the funds of the district that they will not pay one cent for things that look like fads to them. They will frequently say: 'Why, I have a good house and it is not ventilated.' Probably in that house of theirs, with three or four occupants, you will find more cubic feet of air than with the best system of ventilation can be given in a schoolroom for sixty pupils. Argue as you will, lay before them the necessity of the case, and show that there must be greater provision made for the ventilation of a room in which there are sixty pupils than for one in which there are six; you cannot influence such minds, and when the result is reached, you will find that the board has turned down the provision for ventilation as being extravagant. We need legislation that requires every set of schoolhouse plans, before they are used for the construction of the building, to be examined and approved by some competent authority. The law should designate just how much air should be supplied in a given length of time to each pupil within the limits of a school room. We need to have attached to this law fines and penalties in proper amounts so as to make the authority of the law respected. When this is done, indifferent school boards and incompetent architects will cease ruining public school buildings. Massachusetts requires these standards for all of her school buildings, and enforces her law by the police power of the state. This should be done by all states." Boards desiring to build sanitary school buildings cannot do so for the lack of funds; again many boards that could build proper school buildings do not do so for the reason that they do not realize the necessities. The first may be cured by means of enabling ventilation, that is, making our laws more liberal so that more means can be at the disposal of these boards, and in this way permit them to give the people the buildings that the people actually want, but cannot get because the legislature has said they cannot have them. Laws must be made to be so liberal that the least damage possible will be

done to the health of any child while he is in school; framed in such a way and with such penalties that they will command the respect and obedience of the school boards and officers that have charge of the school buildings of the state. Without this, failures must continue, the people's money will be wasted, the health of the children will be undermined, and the seeds of disease in the rising generation will develop rapidly.

Again in actual practice temperature-regulation in schoolhouses is confused with another subject; it would seem almost unnecessary to explain that heat-regulation pertains entirely to a system by which temperature is controlled against excessive heat or excessive cold; while it would seem equally unnecessary to explain specifically that ventilation pertains to the induction of fresh air and the removal of foul, but many school officials do not differentiate temperature-regulation from ventilation; or it may be not from ignorance, but from thoughtlessness. To provide a classroom constantly with fresh air is excellent, but it is entirely different to regulate the air so that it is neither too warm or too cold.

School officials have hitherto occupied their minds with the various kinds of heating systems to the exclusion of temperature-regulation, as the latter has not been urged upon them with any considerable pressure. Busy men do not always find it convenient to give the time necessary for a study of all the things that should go into a schoolhouse, but we know now that in the modern schoolhouse artificial heat need no longer be measured out extravagantly or penuriously to discomfort or danger. Instead it can be placed under automatic control by simple devices to insure economy and protect the pupils' health. An even temperature at a certain degree is conducive to the growth of plant and animal life; vegetable and animal foods owe their prolonged preservation to an even temperature. Variation of temperature is conducive to hardihood, under certain circumstances; for example, a child may withstand extreme cold while engaged in healthy exercise, and under certain conditions extreme heat may be borne without injurious effects, but when the body is inactive a variable temperature does harm. Thus an overheated as well as an underheated schoolroom is harmful.

In modern times temperature-regulation in the schoolroom is a simple proposition; requiring no expert mathematician to measure its advantage, nor a medical expert to examine its hygienic qualities, for a few things need be considered only. Should the outdoor temperature be fifty degrees, and the school temperature seventy degrees, only twenty degrees of artificial heat is required to make the schoolroom comfortable. Consequently the "fuel expenditure" should be twenty degrees only; above this all expenditure is wasted, and consequently foolish. An open window to cool off an overheated room is an unwarranted exposure of the school occupants to coughs and colds, for the fuel expenditure should cover only the difference between the outdoor and indoor expenditure, varying all the way from zero up. This variation may be constant, and the most careful janitor may miss his firing by several degrees of the temperature desired or required, for example, in the forenoon the outdoor temperature may be forty degrees; in the afternoon, fifty degrees. Consequently thirty degrees of artificial heat are required in the forenoon and only twenty in the

afternoon. The surplus heat has either escaped through the chimney with the janitor's aid, or by the school-room window with the teacher's aid. A well-adjusted mechanical device would regulate the temperature from minute to minute without human aid, and regulate the fuel consumption accordingly. Even a few degrees of excess heat will make a vast difference in the aggregate of fuel consumption of the year; and an accurate adjustment of fuel consumption means a saving in fuel expense.

There is no way to estimate the value of the physical welfare of the teacher and pupil. In fact, if it is admitted at all that hygiene is a factor in schoolroom temperature, it follows that it is one that is beyond all monetary considerations. Therefore, if a system of temperature regulation will effect an actual saving in dollars and cents, sufficient to pay its installment in a few years, the advantage is a double one. But if this were not the case, the hygienic proposition involved would alone be sufficient to warrant a recognition of the advantage derived from a heat regulating device; and yet the subject of atmospheric humidity, or air moisture, and its relation to health has thus far received little or no attention at the hands of school authorities. While the subject is an important one, but few data have been collected. Dr. W. M. Wilson, director of the United States Weather Bureau, who has given the subject careful study, says:

"It is safe to assume that during the winter months the normal relative humidity in Lake cities is 72 per cent., and the average diurnal range from sixty to seventy-two per cent. from observations with respect to moisture in business offices and living rooms heated by steam, hot water, and hot air, it is safe to assume that the average humidity in artificially heated dwellings and offices in the winter months is about 30 per cent., or about 42 per cent. less than the average outside humidity, and drier than the driest climate known. The evaporative power of the air at a relative humidity of 30 per cent., is very great, and when the tissues and delicate membranes of the respiratory tract are subjected to the drying process, a corresponding increase of work is placed upon the mucous glands in order to keep the membranes in proper physiological condition. Nature in her effort to compensate for the lack of moisture in the air is obliged to increase the functional activity of the glands, and this increase of activity and the frequent unnatural stimulation induced by the changing conditions of humidity from the moisture-laden air outside to the arid atmosphere inside our dwellings, finally result in an enlargement of the gland tissues, on the same principle that constant exercise increases any part of the animal organism. Not only do the glands become enlarged, but the membrane itself becomes thickened and harsh, and sooner or later the surface is prepared for the reception of the germs of disease, which tend to develop under exposure to the constantly changing percentage of humidity."

The medical authorities tell us that the "physiological effects of an atmosphere too dry, are parched lips and tongue, a dry, feverish condition of the skin, and, in those children predestined to lung diseases, a hacking cough, resulting from the desiccating effect of the excessively dry air on the lungs and bronchial tubes." A mummified and shriveled appearance of the human skin is caused by a dry atmosphere. The ruddy complexion and red cheeks of the English men and women

are due to air moisture. The importance of aqueous vapor as a constituent in our atmosphere was not exaggerated by Tyndall when he startled the scientific world by the announcement that "the removal, for a single summer, of the aqueous vapor from the atmosphere which covers England would be attended by the destruction of every plant which a freezing temperature could kill. A humid atmosphere is economical. In a room in which the temperature is seventy-two degrees the temperature of the wet-bulb is 54—5 degrees. The same result can be attained by heating to sixty degrees, and supplying sufficient moisture to raise the humidity to 70 per cent., which still conforms very closely to the normal condition of the outside air, so far as moisture is concerned. It would probably be impracticable to maintain uniformly a relative humidity of 70 per cent., especially with a low outside temperature, as the condensation upon the windows would be undesirable; but by heating to 65 degrees the relative humidity could be held at 50 per cent. without any ill effects, except possibly on extremely cold days. Competent engineers estimate that about 25 per cent. of the cost of heating could be saved by holding the temperature at 60 degrees, and raising the humidity to 70 per cent., still maintaining a wet-bulb temperature of 54—5 degrees, the same as that obtained by heating to 72 degrees under ordinary conditions. But to be conservative and avoid the possibility of any unpleasant results of condensation, our dwellings could be heated to 65 degrees with a relative humidity of 50 per cent., and still save from 12½ to 15 per cent. over the cost."

Recognizing that a humidifier is as necessary to a first-class heating plant as is a temperature regulator, the inventive mind has also brought atmospheric moisture within automatic regulation. The authorities must govern the practical affairs of the American schools by availing themselves of those modern appliances whose efficiency is now demonstrated and as said at the outset of this paper, the state must not be niggard in school appropriations.

The evil of soft food for children was dwelt upon by Dr. J. S. Turner at Folkestone, in England, during the congress of the British Royal Institute of Public Health. Caries was a frequent result in young children, "starch and sugar, which undergo acid fermentation, being especially harmful and preparing the way for bacterial attacks on the dentine." His remedy was: hard food, insuring mechanical cleansing of some parts and flushing of others by saliva. On this occasion, Dr. H. Campbell dwelt upon the great importance of giving children their starchy food in a form compelling adequate mastication. Not only, he declared, were digestive disturbances occasioned by soft food, but the maxillary apparatus not being adequately exercised, did not develop properly, neither did the nasal passages or the nasopharynx. The teeth were apt to be irregular and the decay early; adenoids were like to form. That these conditions resulted from faulty diet, Dr. Campbell had no doubt. Hard, solid food should be given at the age of seven months; the infant should gnaw at chop bones and chicken bones, and eat hard, leathery crusts, biscuits, sugarcane and certain crusts. Thus does the child learn to masticate by instinct. Throughout childhood, the bulk of the starchy foods should be in a form which would compel mastication, so that buccal digestion would be insured.

TREATMENT OF INFANTILE PARALYSIS.

BY HENRY TAYLOR, M.D.

INFANTILE paralysis is a complex symptom rather than a disease; owing to its frequency and its sequelae, it is a most formidable condition, attacking children at all stations in life, and though not confined to the period of infancy, by far the largest proportion of cases is found in the first and second years of life, after which it progressively decreases as age advances, and especially after the third or fourth year. This paralysis is not appreciable after death, yet it is the result of inflammatory destructive disease in the anterior horns of the gray matter of the spinal cord, anterior polio-myelitis, in an acute spinal paralysis. It is only within the past twenty-five years that the exact nature of the disease has been determined. The want of post-mortem material has been the principal cause of this lack of knowledge, for the disease is not a very fatal one; if fatal cases occur during the early stages, they are apt to escape notice. When the cases live on, secondary changes appear which make the primary or essential lesion, and render it almost impossible for the pathologist to state which are primary and which are secondary lesions. It is now well established that the essential lesion consists in inflammatory softening of the anterior horn of gray matter with hemorrhage, and as a result destruction occurs of some of the large motor cells which are congregated there; as this lesion is acute and destructive so will be the amount and degree of the resulting paralysis, while the situation of the lesion in the cord determines what limbs or parts of limbs are affected; the lesion may be small and confined to the anterior horn; sometimes it is found to affect the antero-lateral column and even the posterior horn of gray matter; sometimes nearly half the cord has been found diseased or destroyed. The clinical results are infantile paralysis, plus something else, such as rigidity, rapid wasting and trophic changes. At an autopsy which Parker made some years ago on the body of a child who died six weeks after the onset of a severe and extensive form of the disease, the gray matter in all the length of the cord was soft and reddened, and in the lumbar enlargement on one side there was an extravasation of recent blood as large as a swan-shot. In some of the microsections this extravasated, unorganized blood crumbled away, leaving a hole, while in the posterior horn adjoining considerable though less advanced changes had taken place. If this child had lived, her paralysis must have been extensive, complete and lasting; for repair could only have been very partial, a little more or less organized connective tissue in lieu of the highly-organized and special nerve-tissue which had been destroyed. Examined at a later stage, when repair has been effected, there will be found an increase in the connective-tissue elements of the cord; these will be encroaching on the nerve-elements, and will cause them to atrophy. This encroachment will necessarily vary with the extent of the primary lesion. Most frequently it extends into the antero-lateral columns of the cord, explaining the contractions and rigidity.

When we examine these paralyzed legs after death, varying conditions appear. In all these is wasting of the structures; in some the structures are merely small and ill-developed, while in others there is extensive degeneration. Limbs may be found in which the muscles

were reduced almost to masses of fat, while in others, there may be no fatty degeneration at all. The subcutaneous fat may be ample, or in other cases entirely absent. The bones are not otherwise changed in their naked-eye appearances, except as to size; they are smaller in all respects than the corresponding bones of the sound limb. In an examination of the nerve-trunks in an amputated limb there is revealed a fibroid degeneration with wasting of the axis-cylinders, being tougher and more resistant than normal; but in size unalterable, while the ligaments were usually very loose, as if they had lost tone.

In considering etiology we find about as many boys as girls. "Catching cold" is sometimes asserted to be a cause; getting wet has also been reported as a cause, while social position seems to exercise no effect. Again, accidents, falls and blows have been accredited as causes, but it is doubtful whether such cases can be seriously considered. The belief that injury has a good deal to do with the onset of this disease is widely prevalent among the public. Of course, a severe concussion may give rise to hemorrhage into the cord or brain, especially in young children, whose nervous system is in a condition of great physiological activity and growth, but the fact remains that the most typical paralysis occurs among well-cared-for children without any appreciable cause, without the intervention of any traumatism, so that undoubtedly traumatism in the so-called traumatic cases is generally a coincidence. Should the paralysis have occurred immediately after the fall, there might be some connection; but even then it would be necessary to prove that the fall was not due to the disease in the spinal cord. We can see the reason for this condition in the fact that there is special vulnerability of the infantile nervous system; relatively large size, vascularity, the rapid development of the nervous system are some of the best recognized characteristics of the organism during early life. As the other systems are prone to inflammatory disease at this period for which no very definite cause can be assigned, why not, then, the nervous system? Again, can it be merely a coincidence that infantile paralysis occurs at the age when rickets generally develop? Ricketty children are well known to have very vulnerable nervous systems, and a good anti-rachitic diet is most useful in treating these paralyzed children during the very early stages of infantile paralysis.

Some of the most typical cases of infantile paralysis appear suddenly, without any warning; children who appear to be in perfect, even robust health are attacked quite as often as more weakly ones; for illustration a baby, ten months old, is put in bed in his usual health; nothing unusual is noticed during the night, but in the morning in preparing to wash and dress him he is found to have lost the use of one arm or leg or of both legs. There is found no fever nor pain, and after three or four weeks he has regained some power, but either the leg or the arm or some muscle or group of muscles remains paralyzed. Sometimes such a history is amplified, as likely as not from the mother's troubled brain, by the recollection that a few days or weeks before the child had a fall; in nearly one-half of the cases the disease comes on without recognizable symptoms and on inquiry some such history as the foregoing will be given. In another set of cases there are some more or less acute symptoms; the younger the child the less definite are these symptoms; feverishness, loss of appe-

tite, depression, general malaise, even convulsions, are the symptoms which usher in all disease in young children and are not diagnostic of this form of paralysis.

Occasionally acute symptoms lasting days may usher in the paralysis; here is a typical case: A girl, aged three years, suffered with great pain in the head; her temperature was high, her skin irregularly flushed, and she was very restless. During the late evening or early morning she cried out, as children do with meningitis, and for two or three days this disease was suspected. But the symptoms gradually passed away, leaving the child in a somnolent condition, very weak and depressed. As convalescence set in, she was found to be suffering from acute spinal paralysis. And yet it is hard to diagnose the disease during the acute stage,—that is, previously to the onset of the paralysis, for the paralysis, at first, is often generalized; that is to say, it may affect all four limbs as well as the trunk muscles. As the acute stage disappears, power is regained for the most part, with paralysis of one limb, or of one group of muscles, or even of one muscle. In the great majority of cases the paralysis affects parts of limbs rather than an entire limb. After an extensive paralysis during the acute stage, it may happen that the parts permanently damaged belong to different sides of the body; thus a deltoid of one side and the leg-muscles of the other side—so-called "crossed paralysis." More or less complete paralysis of both lower extremities, lumbar paraplegia, is not uncommon, while, on the other hand, paralysis of both upper extremities, cervical paraplegia, is very rare indeed. It seems that some muscles show a special proclivity to be affected—or, perhaps it is better to say, the nerve centres controlling them: thus, the deltoid in the upper extremity and the peronei muscles in the lower extremity are very prone to paralysis, while the finger-muscles and the psoas and iliacus muscles escape, even when the paralysis is severe and widespread. I believe that the muscles of the trunk, especially of the back, suffer more frequently than is generally supposed, and I incline to the belief that many cases of angular curvature of the spine are due to the action of unantagonized muscles brought about through this means.

Rilliet and Barthez said years ago, "*La paralysie est toute la maladie*," which sums up the diagnosis, but not entirely, for there is a condition antecedent to the paralysis, as well as a subsequent stage, at which paralysis does not obviously appear. I have referred to the absence of any characteristic symptoms during the initial stage in a great number of cases, yet a guess can sometimes be made, although a diagnosis but rarely. Later the diagnosis is clear enough, often without asking a single question. A healthy-looking child is brought whose only defect, perhaps, is inability to raise the arm from the trunk; the forearm and hand can be moved freely; there are no marks of injury; while passive movements can be made in any direction without causing pain and without difficulty. The intelligence of the child is perfect. There can be no fracture or dislocation or local disease; hence no other diagnosis is possible than infantile paralysis affecting the deltoid muscle. Cases sometimes present themselves in which there is no paralysis, even, but which, nevertheless, belong to the disease. For instance: A young lady comes for treatment because she has commenced to limp. There has been no injury and no pain, and there is nothing wrong as far as can be determined. Careful examination shows

that one limb is smaller than its fellow; on inquiry it may be ascertained that the patient is growing rapidly, perhaps has recently commenced to grow. A limb which has once been paralyzed, even though it may seem to recover, will subsequently be less strong, less vigorous, less enduring, and will grow rather slower, than its unaffected fellow. The difference may be very slight and for a while escape notice. It is chiefly in those that grow very tall and very rapidly that the asymmetry becomes noticeable. A differential diagnosis between infantile paralysis and some other paralysis affecting children will occasionally have to be made. With the exception, perhaps, of diphtheritic paralysis, there will be little or no difficulty, and only in a few instances is diphtheritic paralysis liable to be in question. Infantile paralysis has never, so far as I can determine, affected the eye-muscles; but of all muscles after diphtheria those of the eye are most liable to suffer, and, after these the muscles of the palate and pharynx. The muscles, one or more of the leg, singly or in groups, are affected after diphtheria and these cases are very similar to the results of anterior poliomyelitis, not only clinically, but also pathologically; in diphtheritic paralysis the onset is rather slower, the duration shorter, the recovery quite constant and complete; the muscles do not waste, and there is no diminution of their faradic excitability. In many of the cases the history of diphtheria is very slight. In the vast majority of cases, loss of power in one limb or in more than one limb or in a group of muscles of a limb, coming on rather suddenly, without any marked symptoms or cause, during childhood, may be diagnosed as "infantile paralysis." Should any long interval since the onset have occurred, there will be more or less atrophy of the affected parts, chiefly in but not confined to the affected muscles.

The prognosis in infantile paralysis as to life, in the acute cases and stages may be "guardedly favorable," for deaths from this cause are uncommon. Generally, too, a considerable amount of the early paralysis clears up; this may occur sometimes with considerable rapidity; or in some cases weeks may elapse. But some improvement nearly always occurs. It is a good working rule to remember that any paralysis which persists for three months will probably be permanent, while the muscles of the trunk, head, and neck more frequently recover and more completely than those of the limbs.

On the other hand, unfortunately, the prognosis as to the usefulness of the limb should always be "guarded and favorable," for rarely does a case of infantile paralysis get well after lasting three months. The greater the initial damage to the cord, the deeper will be the damage to the limb; every tissue in a limb subsequently suffers, while the bones as well as the soft parts will be dwarfed and weaker than those in healthy portions of the body.

In the prognosis, remember that the age of the patient at the time of the initial attack is an element of importance. Is the limb likely to be much shorter than its fellow? This will depend on how much the patient has to grow. Is he quite a child and has he all his growth to make? The more he has to grow the greater is the probability of a shorn limb, while a limb never gets smaller, though it may cease to grow, or may grow very much more slowly than its unparalyzed fellow. The difference in length depends on the more rapid growth of the sound limb: the more this grows the

more marked will be the difference in length between the two. The surgeon is often asked whether deformity is likely to come on; but deformity is not necessarily a sequel to paralysis. A paralyzed muscle remains helpless and flaccid; it atrophies partly from its disease and partly from its enforced inaction. Its antagonizing muscles also atrophy; for a muscle, though it can contract and shorten itself, cannot elongate itself, hence, having once contracted, it remains so and becomes inactive, as if it were paralyzed. Should spastic rigidity of some muscles appear with paralysis of others, then the lesion has spread beyond the limits of the anterior gray horn of the cord; in other words, it is more than infantile paralysis. This rigidity usually comes on quickly and differs from simple contraction; for the latter can be overcome by passive movements; it is a local condition, while rigidity is a central one. It is quite easy to understand that a third, perhaps, even a quarter, of the total cases are complicated with more or less deformity. It is quite easy also to understand that an inflammatory lesion, such as this, cannot be strictly confined to the central gray matter if it is at all extensive. It may be very nearly so in some cases; these are doubtless the cases which clinically are very slight and very local. As repair and cicatrization take place, some secondary involvement of neighboring parts is almost sure to set in. Deformity comes on very gradually; it is as often as not brought about by the efforts of the patient to walk on an ill-balanced foot. Such cases and consequences ought to be carefully differentiated from others which may depend on spastic rigidity. Does infantile paralysis affect the brain, and the intelligence? As a rule, no, for the lesion is purely a local one, and after three or four months probably remains stationary; there being no fear of its spreading.

The treatment may very conveniently be considered in reference to all the various stages. During the acute stage, very shortly after the acute stage is passed and during the later stages. Unfortunately cases of infantile paralysis during the acute stage rarely come under the surgeon's care; but even when they do, they are seldom recognized until paralysis—which is the sequel rather—has set in. It is difficult, therefore, to lay down any hard-and-fast rules for treatment; but when the paralysis has manifested itself, then, in view of the known condition of the spinal cord,—a more or less acute and extensive myelitis,—useful treatment may be recommended and undertaken. The first and foremost indication is rest in bed until the inflammatory stage is well over, not only to prevent a further inflammation and hemorrhage, but also to give the already diseased parts an opportunity to recuperate. Locally, over the spine, on each side of the middle line, counter-irritants may be applied, and nothing is better for this purpose than "flying blisters," the application of blistering fluid over small areas, frequently repeated. In this way large open sores are avoided, while an effective counter-irritation can be kept up as long as is desired, or strong tincture of iodine may be used for this purpose. Dry-cupping is excellent, small cups being used at short intervals along each side of the spine. Whichever plan be preferred, it should be most persistently used in that part of the spine which seems most affected. Friction is also indicated, along both the spine and the limbs, but the patient should remain passive and recumbent; suppress all voluntary effort to move the muscles, as this necessarily determines blood to the affected centres, and

may make matters worse.

In regard to internal treatment during this stage, belladonna combined with potassium iodide is most useful. Order according to the age, a quarter of a grain of the extract with two or three grains of the iodide in sweetened water three or four times a day. It will be found that the loss of power is often the only subjective symptom; but should other conditions be present, they must be treated on general principles. When the more chronic stages have been reached, local treatment for the paralyzed limb is chiefly indicated, the degree and extent of paralysis varying from paresis of a single muscle to absolute loss of power in the limb. A walking-stick may suffice for the patient, while in other cases elaborate instruments are called for to enable him to support himself when trying to walk. The indication is to supply, artificially, the lost power; assist that muscle or group of muscles which is weakened. Maintain the limb or foot in as natural a position as possible, as this will materially help a weakened muscle to act. The healthy muscles should act in concert, with and against one another. When anything interferes with this concerted action, all the muscles,—the healthy one as well as the paralyzed, are placed at a disadvantage. Hence it is that limbs, of which only some muscles are affected, gradually waste and lose power. Deformity is no necessary sequel to infantile paralysis; when present, it very often assumes the nature of a club foot. But it can very easily be prevented, if care be exercised. In many cases the deformity can be rectified without surgical operation. The more marked the paralysis and atrophy, the less necessary is operative treatment; for the vitality of such a limb is lowered. Beyond a tenotomy, therefore, it is unwise to go, and not even to perform this operation until mechanical means have failed.

As regards instruments, they should be simple and as light as possible; many paralyzed children have suffered more from instruments than from paralysis, and have commenced to improve and get strong on discarding their cumbersome, heavy instruments. Their shoes, too, should be light and fit accurately; because when they are either too loose or too large, they cause sores, in the one case from friction, in the other from pressure; a great deal of support, as well as warmth, can be obtained from a well-applied flannel bandage; for if the ankle be very weak and the ligaments lax and loose, a flannel bandage from the toes upward with two or three or four figure of eight turns around the ankle-joint will give support oftener than can be obtained from mechanical appliance, besides having the advantage of being cheap and always available. Special manifestations must be met as they arise. When there is much atrophy and when the circulation is bad, means must be adopted to protect the limb from cold and changes of temperature by the use of warm woollen coverings. Stimulating liniments may be applied from time to time and well rubbed in; in this way chilblains and ulcerations can alone be prevented and cured. Over and above these local measures, general treatment must be insisted upon, and everything done to keep up the general nutrition and to promote metabolism. Tonics, including iron, arsenic, strychnine, cod liver oil, will be found useful. Fatigue, in every shape, must be avoided. Prevent, if possible, paralyzed children, even those with the slightest forms, from attempting too much. When at school a desire to excel may lead to more exertion than is good, for a child with a paralyzed

leg is always handicapped.

Experience has taught that electricity has no special action on these paralyzed legs; it being largely of service simply for improving the tone of the muscles, but careful rubbing is just as good. In the old chronic cases general treatment often improves the condition of the limb, but above all things home treatment and constant care is essential. Medical treatment is only palliative, for the lesion which causes the trouble is beyond the power of the physician to remove.

A STUDY OF ANEURISM.

BY M. SCHELLENBERG, M.D.

THE diagnosis of varicose aneurism of the aorta and superior vena cava may be based upon the following principal symptoms. Cyanosis, œdema, coldness, and distention of the veins of the upper part of the body, with other evidences of obstruction to the circulation of blood in the tributaries of the superior cava; these symptoms have been present to some degree in all the reported cases. No other lesion could produce such a condition, with its peculiar localization, except some great obstruction to the course of the blood in the superior cava. The thorax, however, does not always share the lividity and œdema of the head and arms; this variation depending solely on the position of the perforation or of the compression. If, namely, the obstruction in the cava is situated below the point of entrance of the azygos vein, the chest will share in the venous congestion; if, on the other hand, the obstruction is above the azygos vein, the removal of blood from the chest-wall is not interfered with, and no œdema develops. Should the thorax be involved there is sometimes a clear line of demarcation between the upper affected and the lower unaffected portion of the body, shown by the numerous small varicose veins around the lower part of the thorax. Occasionally a patient has shown a greater degree of œdema on one side than on the other. This condition may be produced in several ways; for example, a long-standing obliteration of the left innominate vein had allowed the establishment of the collateral circulation, so that the sudden rupture of the aneurism produced œdema almost limited to the right side. A similar unilateral œdema and cyanosis of the upper portion of the body would be produced by communication of an aneurism with the left innominate vein. Another case, illustrating differences in the swelling of the two arms is that in which the opening into the aneurism from the vena cava was situated close to the bifurcation of the cava, in such a position that the blood-current was directed into the right innominate vein, producing consequently much greater swelling of the right arm.

Whenever death has very quickly followed the rupture of the aneurism there may have been no time for the appearance of œdema and lividity of the arms. This was the condition in one case reported in which only the face and neck gave evidence of the change. The onset of the symptoms in this instance being so sudden that death occurred in six hours. The cyanosis depends simply on obstruction from compression by the aneurism, and from the backward pressure of the arterial blood into the vein. Slight œdema has in some instances been witnessed in parts of the lower portion of the body, though always secondary to that above.

Thus, in one patient there was slight œdema of the ankles and scrotum, and in other of the genitals, hips, and upper part of the thighs.

œdema of the lower regions of the body in each instance is due to the overfilling of the inferior cava through the necessity which it is under of receiving a large part of the blood belonging to the superior cava. This same passive congestion explains the scanty secretion of urine which has been noted in a number of instances. In a considerable number of cases large amounts of fluid have been found in both pleural cavities, while in other instances there was none. The difference undoubtedly depends largely on whether or not the circulation in the azygos vein is interfered with. Besides the cyanosis and œdema, dyspnoea may be present, either from the outset or later in the disease. In Pepper and Griffith's case it was intense, as it was in a large number of others. In others again it was absent, or slight, or not referred to by the writer. It is not at all essential that dyspnoea be present, as it is in the event of rupture of an aneurism into the pulmonary artery. Its development depends on various factors, such as double hydrothorax with consequent compression of the lungs; œdematous swelling of the mucous membrane of the nose, pharynx, trachea, larynx, and bronchi; œdema of the lungs; pressure by the tumor on the respiratory tube; over-filling of and consequent irritation of the nerve-centres with venous blood. Occasionally death is directly due to an attack of extreme laryngeal dyspnoea. Other symptoms, indicating venous obstruction may be seen, such as coughs, a frequent and natural attendant on the dyspnoea, and rales of various sorts are often heard. There was sometimes expectoration, and not infrequently it was tinged with blood. A considerable pulmonary hemorrhage may take place, due, probably, to an erosion of the trachea by the aneurism. Thurman claims that the dyspnoea, cough and other evidences of pulmonary congestion witnessed during life or after death, are due to circulation through the lungs of an admixture of arterial and venous blood, and the resulting irritation by it of the bronchial mucous membrane. In some cases there has been difficulty in swallowing, probably due either to pressure of the aneurism on the œsophagus, or, in other instances, no doubt, to the excessive distention of the tissues of the neck with serum. Bloody tears were seen in one patient, and blood oozed from the conjunctivæ in another. A not infrequent symptom as the end approaches is a marked tendency to sleepiness, and finally coma. In some cases delirium was present before the coma developed. Attacks of faintness have also been reported. Excessive restlessness was noted. Headache, too, is naturally present at times. Giddiness was observed in a number of other cases; convulsions were uncommon, though they occurred shortly before death in one patient. Pain in the chest was sometimes observed, and in some instances was among the first symptoms appearing. Coldness of the upper portion of the body is a very common symptom. With the recognition of impeded return of blood through the superior cava the diagnosis is by no means made. Obstruction to the flow of blood in the cava from various other causes may, as already stated, produce the same symptoms. Still, the comparative suddenness of their development in cases of varicose aneurism constitutes a most valuable diagnostic sign. This rapid development was seen in all the cases in which the mode of onset is

reported. A study of these cases reveals the fact that there is no instance reported in which there is an account of simply a very gradual increase in the gravity of a previously existing condition. Only a few days at the most were necessary for the characteristic symptoms to appear. The rapid development of symptoms is not, however, absolutely pathognomic of rupture of an aneurism into the vena cava, although it renders the fact of its occurrence extremely probable, for, although simple compression of the cava is usually slow in its onset, the symptoms may exceptionally make themselves known with comparative rapidity. A case is reported by Dujardin-Beaumetz in which extreme venous congestion was produced in the course of ten days, the cause being compression of the superior vena cava by an aneurism and the development of a clot in the greatly dilated azygos vein, in which the collateral circulation had previously been carried on. Dujardin-Beaumetz has been unable to find any other case recorded in which the symptoms came on so rapidly.

If, moreover, the presence of an aneurism is confirmed by physical examination, the diagnosis of rupture into the superior cava becomes greatly strengthened. The physical signs discovered in the chest may be inconstant and contradictory, owing to the interference presented by the great œdema of the thoracic walls. One symptom, however, was nearly always observed, viz.: a degree of dulness below the right clavicle and under the upper portion of the sternum. A review of the reported cases shows that a percussion dulness, occupying this same region was frequently present. Not uncommonly this centre of dulness exhibited a thrill, usually systolic in time.

There is one positive fact in all this data; this is that the existence of a murmur is characteristic of a communication between an artery and a vein; when this is present the existence of a varicose aneurism becomes a certainty. The chief characteristic of this murmur is that it is continuous, being due to the fact that the passage of blood from the aorta into the cava is a continuous one; but during systole the pressure is at its height, and the sound is consequently loudest and highest pitched. In the diastole the current from the artery to the vein depends on the elasticity of the arterial system action upon the contained blood, but the murmur is still audible, though continually growing fainter and lower pitched. A continuous murmur would seem almost necessarily to owe its existence to a varicose aneurism. Neither a simple aneurism nor any form of valvular disease could produce the continuous sound, since there would need be a short interval between the systolic and diastolic portion. The peculiar continuousness of the murmur was noted in one case as well as the fact that its quality was distinctly venous. That the peculiar continuous murmur is pathognomic of a varicose aneurism was recognized and maintained by Thurman, Mayne and Cossy, who urge its diagnostic value, though showing by their own cases that the symptom is not an essential one. In each the murmur was systolic only, which the writers explain on the ground that the very marked disease existing in the arterial walls interfered with the arterial contraction during the cardiac diastole, and in this way produced the absence of the diastolic part of the murmur. They may be due to the passage of blood through the perforation, audibly only during a portion of the cycle; at other times they may have been produced in the aneurism or in diseased aortic valves;

in certain instances the signs of aneurism were very meagre.

Nothing can be confounded with this condition except a remarkably sudden obstruction of some other nature to the passage of blood in the vena cava, and such cases are almost hypothetical; while from other varicose aneurisms of the aorta the diagnosis is easy. Rupture of an aneurism into the right ventricle or right auricle would produce general cyanosis and œdema and rupture into the pulmonary artery could not produce the characteristic localization of œdema and cyanosis. The murmur would be heard at the left edge of the sternum instead of at the right edge. The dyspnoea would probably be intense, and symptoms of engorgement of the lungs would eventually be followed by general anasarca, as in mitral disease. As the reported cases show, the prognosis is most unfavorable, for death has supervened in every case reported. All treatment has proved useless; venesection has been most frequently employed, but never with permanent benefit. Cupping, wet or dry, and free purgation may be employed. The strength should be sustained as far as possible, in the hope that the collateral circulation may become established, if the perforation be not too large, or that the opening may become established, if the perforation be not too large, or that the opening may become closed by a thrombus.

Scheele classes the remedies in the treatment of aneurism in three groups: dietetic, medicinal, mechanical or surgical. As regards the dietetic, Tufnell's method is the chief. The low diet and the rest increase the blood pressure of peripheral source, lessen the number, and the more force of the cardiac contractions, and greatly increase the relative proportion of the fibrin of the blood—the effect of these agencies being to favor coagulation in the aneurismal sac, and organization of the fibrin. Successful cases have been reported by Tufnell, Bellingham, Findlay and others. Von Harris had collected 13 cases, and of these 6 were reported as much improved, McKeller has published an account of a case spontaneously cured under conditions that, in practical action, correspond to Tufnell's method. It was a sacciform aneurism of the coeliac axis, which became consolidated during an attack of chronic dysentery that ultimately proved fatal. Of the purely medicinal agents used, Dr. Scheele considers the various medicaments that act on the vessels and favor coagulation of the blood in the aneurismal sac by raising the peripheral tension. The most striking instance of cure is the case narrated by Flint, of England, in which this result was achieved by chloride of barium, one-fifth to one-third grain in pill three times a day. Digitalis is spoken of with favor in the cases of aneurism accompanied by mitral incompetence and dilated right cavities. The most useful of these dynamical remedies is ergot, especially as employed by subcutaneous injection according to the method of Langenback. Scheele commends especially the utility of iodide of potassium in massive doses, according to the plan of Bouillaud and Balfour. At first, merely empirically used, its mode of action is now being established on a physiological basis by the researches of Nothnagel, Rossbach and Kobert.

It seems to be clear that the iodides have an action on the blood, increasing its coagulability, and on the vessels, lessening the calibre of the arterioles, which has the effect to raise the tension and slow the beats. We will not follow Scheele in his account of the surgical or

mechanical treatment; but *apropos* of an abstract given above, we call attention to the use of ice in the treatment of aneurism. Scheele finds the secret of its utility in the effects of ice on the vessels, and in slowing the heart.

THE VAGUS REFLEX IN CONNECTION WITH PULMONARY DISEASE.

In a paper on this subject, contributed to the *N. Y. and Phila. Med. Journal*, by Thomas J. Mays, the vagus reflex is defined as essentially a sensory reflex, called forth by applying pressure over the vagus behind the carotid artery in the neck, and accompanied by cerebral, respiratory, cardiac, arterial and motor manifestations. From an analysis of the symptoms and conditions as they are developed by the vagus reflex in the 380 cases which form the groundwork of the author's study, he would draw the following conclusions:

(1) That there is sufficient pathological evidence for believing that the integrity of the vagi is always impaired in pulmonary consumption.

(2) That the vagus reflex is universally present in active pulmonary consumption, and in the vast majority of cases of this character it is situated on the same side of the body as that on which the lung affected is found.

(3) That the vagus reflex is present in about 80 per cent. of healthy people who have a family history of consumption.

(4) That in healthy people without a family history of consumption the vagus reflex is universally absent, provided there does not exist a family or personal taint of alcoholism, insanity or some other neurosis.

(5) That in the development of the vagus reflex, dizziness, dyspepsia, coughing, sweating, and other symptoms are produced at the same time in about one-sixth of the number of consumptives. While the same is true in about one-third of the number of healthy people whose family history is burdened with consumption.

(6) That the intensity of the vagus reflex, or, in other words, the number of symptoms that accompany its development, other than those which manifest themselves locally in the neck, seems to be dependent on the number of deaths that have occurred in the families of consumptives and in those of healthy people.

(7) That there is an appreciable difference in the degree of vulnerability to consumption among healthy people below the age of 35 years, between those who have a family history of consumption and a vagus reflex, and those who do not have the same, and that after the above given age period this difference is eliminated.

(8) That the vagus reflex is a valuable sign in the diagnosis and prognosis of pulmonary consumption, for, by projecting the family history of the potential consumptive into the present, it not only foreshadows that which is not otherwise evident to the senses, but becomes an important factor in the porphyllaxis and treatment of this disease.

Congenital Absence of the Tibia.—The etiology of congenital absence of the tibia has never been settled. In an exhaustive paper in the *University Medical Bulletin* for December, Young attempts to reach a definite conclusion. There have been fifty-one cases reported in medical literature, principally from European sources. There have been five theories to account for this condition. Young dismisses entirely the idea of

maternal impressions; where deformities have simulated certain animals, he believes it simply to be coincidences; for example, Thumel reports a case where there was a history of maternal impression late in pregnancy with extraordinary resemblance to the cause of fright, and yet embryologists all know no such change could have taken place so late in pregnancy. It was simply a coincidence.

The five theories may be summarized as follows: (1) Theory of heredity; (2) prenatal disease or musculo-nervous theory; (3) arrest of development or osseous theory; (4) mechanical pressure or intra-uterine pressure theory; (5) amniotic adhesion theory. The theory of heredity dates back into antiquity, but no clear evidence exists on the subject; the prenatal disease theory also started with Hippocrates, but it is not popular with modern observers. The theory of the arrest of development is hotly disputed: affirmed by Gegenbauer and Thiele, it is denied by Ostaldi and Busachi. This theory is apparently untenable from the fact that the remaining parts at birth exhibit no evidence of arrested development. The fourth theory of mechanical pressure is advocated by Motta, but the evidences are not clear. Young favors the fifth theory, that there is an amniotitis in early fetal life. Animal bands have been described by Dareste, and the deficiency of liquor amnii is well known. These amniotic bands result in fetal amputations and adhesions between the amnion and fetal parts. The subsequent increase in the fluid results in the formation of bands, cords or the destruction and absorption of the attached parts. This theory is not new; it was taught by Mercier sixty years ago, but the exact manner of the production or the loss of parts has never been thoroughly investigated.

The tibia suffers more frequently, owing to two factors: first, the position of the fetus is such that the pressure upon the abdomen would force the lower extremities against the sacrum and produce an injury to the amnion, directly overlying the tibia, and second, the centres of ossification in the tibia are deposited very early, as early as the seventh week, which accounts for the loss of the shaft of the lower extremity. After the attachment of the part to the amnion the inflammation produces an acute polyhydramnios, which making traction upon the attached portion of the amnion, pulls the skin and the underlying structures from their places, separating them from their nervous and vascular connections, or by the formation of amniotic bands cutting them off and causing their absorption.

Young's conclusions are as follows:

1. That the congenital absence of the tibia is not teratogenic.

2. That congenital absence of the tibia is due to amniotic adhesions.

3. That the amniotitis which is the cause of the adhesions is usually the result of traumatism.

4. That the traumatism usually occurs early in fetal life, is slight in character, and occurs usually about the third month.

The Harvard Medical Commission, which for the last two years has been making a study of cancer, report this disease to be non-contagious. They find: First, that cancer is not infectious; second, that it is a hereditary affliction; third, that its cause is as mysterious as that of human life, and fourth, that the remedies are either the knife or a serum.

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An institution is the lengthened shadow of one man—and all history resolves itself very easily into the biography of a few stout and earnest persons.—*Emerson*.

THE SURGEON-GENERAL'S REPORT.

THE report of Surgeon-General Wyman, of the Public Health and Marine-Hospital Service, is before us, and as usual, it is an interesting and instructive volume, worthy of study.

One of the first points which strikes our eye, is the account of the death of Surgeon R. D. Murray, due to an accident while engaged in the suppression of yellow fever at Laredo, Texas. Dr. Murray's skill and devotion through thirty years of service in the suppression of epidemic diseases, were so marked as to give him a national reputation and to make his loss a public misfortune.

During the year, 840,714 immigrants were inspected by officers of the service to determine their physical fitness for admission as prescribed by our laws. A similar service was performed in Japanese and Chinese ports, of aliens embarking for this country. It is shown that a large number of immigrants have been prevented from leaving their countries, who would have been rejected on arrival.

The Sanitary division reports 25,106 cases of small-pox in thirty-seven different states and territories, with 1,642 deaths, a great decrease from the previous year. It is thought that this result shows greater confidence in vaccination and an improvement in the vaccine used. The fact that all vaccine establishments must undergo a rigid examination by the government before being licensed, as required by law, has increased public confidence, so that there is less opposition to this procedure than formerly. The department has most properly co-operated with state and municipal authorities in the suppression of this dread disease.

Dr. Wyman recommends the establishment of a leprosarium in this country, and rather suggests the

Hawaiian Islands as the proper place for it. The leprosy germ has been isolated, but it is believed that much may be accomplished by a thorough inquiry into the methods of cure.

The plague which has existed in San Francisco for several years, has steadily diminished, and the methods adopted for its extermination have been vindicated. Our Southern neighbors continue to be a menace on account of the prevalence of the disease in these countries, but there is encouragement in the fact that we have both preventive inoculations and a curative serum for its treatment, which with a disposition of all countries to co-operate for its extinction, is certainly hopeful. A most important point is the fact that the disease is better understood and is being scientifically investigated.

Nearly all the cases of yellow fever occurred near the Mexican border, and the treatment employed shows beyond question, that the disease can be controlled by measures directed exclusively toward the mosquito. Here again we may hope for great results from the co-operation of our neighbors. In the 1,194 cases reported, there resulted 134 deaths, but probably there were many cases not reported.

Dr. Wyman's report of the National Quarantine Service, illustrates clearly how the great epidemic diseases may be suppressed and excluded in the presence of untoward conditions by scientific methods, accompanied by administrative skill and energy. It is no slight compliment to this country, that the findings of the International Plague Conference in Paris, are in accordance with our quarantine regulation. Men are constantly being trained specially for the administration of quarantine stations, and in practical work at the stations, under competent officers, so that material is always at hand for emergencies.

The director of the Hygienic Laboratory is preparing a standard unit for diphtheria antitoxin, which will fill a long felt want.

A review of their reports show that the service has fairly entered upon its function as the national health organization, its various divisions practically working as a unit.

Dr. Wyman says in conclusion, that it should be borne in mind, that the object of our own and other national organizations is not merely the exclusion and suppression of the great epidemic diseases. Greater attention is now directed to what has been termed the lesser epidemic diseases, which are in reality more fatal and bring far greater distress. In the advancement of civilization, the elimination of these more familiar diseases will be by insistence upon sanitary dwellings with plenty of fresh air and sunlight, pure water, and safe disposal of all wastes.

The details as given under the several divisions, are minute studies of important subjects, by specialists in

the respective lines, which will be found of great use. Dr. Wyman should be complimented upon the character of the work which he has directed so successfully.

THE CONTROL OF DRUGS BY THE GOVERNMENT.

IN contradistinction to the action of the committee of revision of the forthcoming pharmacopeia bobs up again the question of the federal control of drugs. Doctor Wiley, at the recent meeting of the American Medical Association (*Journal of the American Medical Association*, December 3, 1904), took up this problem, for discussion of which he is so well fitted. The term "drug," as used in acts of congress, has been interpreted to mean any remedy intended for external or internal use.

The Department of Agriculture carries on the investigation of drugs under the act making appropriations authorizing the Secretary of Agriculture to investigate the adulterations of foods, condiments, beverages and drugs. He also has the power to investigate the false labeling or branding of foods, drugs, beverages, condiments and ingredients of such articles. He has unfortunately no control or inspection of these articles, simply the power to investigate. He can, however, through the Secretary of the Treasury exclude from the ports of the United States foods, drugs, beverages, condiments and their ingredients when found to be dangerous to health, or false branded, which includes their contents, place of manufacture or production, or which are forbidden to be sold in the countries in which they are made, or from which they are exported.

The Treasury officials have been so efficient in this foreign department that the Department of Agriculture relies upon their work entirely in this field.

A year ago the Department of Agriculture organized in the Bureau of Chemistry a drug laboratory for the investigation of the purity, adulteration and false labeling of drugs. This laboratory works in collaboration with the American Pharmaceutical Association. The laboratory is hampered by lack of assistants, for the chief has but three, so he confines his attention to the more pressing problems presented. One bulletin, known as Bulletin No. 80 of the Bureau of Chemistry, has been published covering inferior drugs and insidious methods of deception, rose geranium oil and its substitutes, and phenacetin and its commercial status. The introduction to this Bulletin gives its scope:

The first two articles of this bulletin set forth the conditions that prevail, not only in relation to individuals, but also in some of the best-regulated laboratories. There is a continual cry for cheaper drugs, and in the effort to meet this demand and at the same time make a profit adulteration has spread. The members of the pharmaceutical profession of high standing,

however, are anxious to remove from the trade any odium due to adulteration which at present exists.

The third paper deals with the medicinal remedy phenacetin, which, according to reports, has been largely adulterated in this country, and many substitutes offered therefor. This subject was studied because of the great interest that exists concerning it in both the medical and the pharmaceutical world, many druggists and physicians being directly involved in the controversy. The fact that phenacetin is sold for 15 cents an ounce in Canada, while \$1 or more is charged for the same amount in the United States, creates an impression, correct or incorrect, of injustice. The conditions set forth concerning phenacetin are, moreover, typical of those affecting a large number of patented medicinal remedies. Furthermore, the attempts that have been made to secure such changes in the patent laws as would eliminate these disturbing factors have not been successful. It is hoped that the contents of this paper will place the whole situation before the public in a just and impartial manner.

This department also works in conjunction with the Post Office Department to exclude dangerous, fraudulent, and deceptive matter from the mails. The Postmaster-General has great power in excluding secret remedies, nostrums and other members of this class from the mails, including their advertisements.

Federal control is growing naturally, but the inspection and control is not yet perfect or universal, but the tendency is in the right direction.

THE SCHOOLROOM AND DISEASE.

IN our current issue will be found an article on the schoolhouse in its relation to disease, in which this subject is treated in a practical and unusual light. There is, however, still further matter of interest to the physician in the schoolroom itself. This all-important feature in modern education may become a potent source of diseased conditions. It is the belief of many well-known ophthalmologists that the vision of children is constantly deteriorating during the period of school life. Not only is the increase in spectacled children an evidence of expanded knowledge in eye conditions, but it shows an increase in those who need such help. The result is that the use of vision for near objects is increasing until it is practically constant, while the use of vision for distant objects has been only occasional. The eye must accomplish this close work by muscular effort; accommodation and convergence are both muscular acts, and with undue work, produce disability and weariness.

School life predisposes to myopia; Colin, of Breslau, has proved that in village schools 1.4 per cent. of myopia exists; in elementary schools 6.7 per cent.; in high schools for girls 7.7 per cent.; in middle schools from

10.3 to 19.7 per cent., and in gymnasia 26.2 per cent. In other words, the percentage of myopia increases with the grade of the school.

In consequence there are many factors to be considered in the schoolroom; first, is the lighting, which is of prime importance. The light should be good, abundant and properly directed. Again Colin has shown that the narrower the street in which the schoolroom is placed, the higher the opposite houses, and the lower the story in which the student is placed, the more numerous the cases of myopia. The French law requires that the top of the school window shall be a distance from the floor equal to two-thirds the breadth of the room. Light from the left is the best, somewhat from behind, as the majority of students are right-handed.

Nothing takes the place of daylight; the best artificial light ever made is no substitute, so children should study in the daytime. How little this admonition is followed through the school districts of this country.

The seating and posture of children is all important. A bad posture not only injures the eyesight, but produces a crooked spine.

Ninety per cent. of curvatures of the spine not produced by actual disease, are developed by school life. Desks of different sizes are requisite, just as different clothes are needed by different children. As a rule no attempt is made to fit desks to the size of children. A back rest is important, and it need not reach above the loins, and the height of the seat, desk and their slope are all important. The approved slope for writing is 20 degrees, for reading, forty degrees.

School books are much better printed than years ago, but mathematical publications still leave much room for improvement. Little children, as pointed out by Snell, should have books with large letters; with adult faculty we learn to guess our words; the eye in reading has no time to examine each letter and word carefully, but children have no such aid.

Educate our teachers and school boards, and the future parents will rise and call us blessed.

ABNORMALITIES IN THE COLOR OF HUMAN HAIR.

ONE of the curious phases of medical research has been the study of the color of human hair.

At once the student is impressed again with the vast capacity of nature for variety, for while yellow, red, brown, black, gray and white hair is known to all, there are instances on record where the hair has been blue and green and a curious condition where hair is different colors in different segments of the same shaft. Again cases have been recorded where the change has been periodical without known reason; others where the season of the year seems to be a predisposing factor and again where after change, hair

has returned to its normal color during the lapse of years.

The most conspicuous change in the color of hair is seen in the so-called "albinismus," which occurs both in negroes and whites. It is generally hereditary in character, although cases are recorded of albino children being born to brunette parents.

Sudden whitening of the hair is well authenticated, being known for centuries as recorded poetically by Byron in the "Prisoner of Chillon." Darwin states a case where a man led to execution became gray before the eyes of the spectators. Laycock records the case of a Sepoy who became gray in a half hour. Cantrell reported an interesting case in his clinic, a man of forty-five, whose moustache became white in twenty-four hours and in ten days his whole head of hair changed its color to white. Brown Sequard watched his own hair change; it occurred so rapidly that he could note the change daily. Henry of Navarre had his hair change in twenty-four hours. Again in certain diseases, the change may be rapid, as in chlorosis, facial neuralgia, palsy of the face, epilepsy, locomotor ataxia, scarlatina, and small-pox. Cantrell believes the color depends largely on the air-bubbles within the hair; in black hair these bubbles are in minute quantities while in those of brown hairs we have them in some slight increase and in larger quantities in red hair. Through some nervous shock or other obscure cause, the collection of air-bubbles changes throughout the hairy system with a change in the refractive power of hair and an apparent loss of color, although hair is never devoid of color except in albinos.

As might be expected, blue hair is found among workers in cobalt mines or those working in the production of indigo, while green hair occurs in copper mines. Again applications of corrosive sublimate and an ointment of yellow oxide of mercury may change the hair to a greenish hue. Wilson records a curious case where a man with gray hair saw it turn back to brown before his death at the age of one hundred and fourteen years. Copeland records cases where gray hairs became black without any applications. In a case of typhus fever a woman who had blonde hair had it replaced by coal black hair.

One of the most remarkable cases in medical history is recorded by Warner, who reported the case of a man whose hair turned from black to white and back again three times in twenty years. The change from black to white was rapid while the reverse process was slow, taking five years for its completion. Wilson reports a head of hair which was gray in winter and normal in summer. In fact almost every phase of fancy is recorded in the history of this sort, being another exemplification of the fact that truth is stranger than fiction.

THE STRANGE CASE OF THE REV. MR. HANNA.

EVERY mature reader of Robert Louis Stevenson's uncanny portrayal of the dual personality of Dr. Jekyll and Mr. Hyde must have reflected that there is something strangely true to life in this tale; that in every individual there seem to be two natures, oftentimes antagonistic the one to the other. In the now almost obsolete works of Carpenter, these phenomena were attributed to the lateral halves of the brain sometimes working independently of one another, the more powerful half dominating the organism, while the other remained impotent.

We have now a scientific consideration of a very striking case by Dr. Boris Sidis in the book entitled *Multiple Personality: An Experimental Investigation into the Nature of Human Individuality*. In this work, Dr. S. P. Goodhart is a collaborator.*

The Rev. C. Hanna, while returning from a drive on the evening of April 15, 1897, "stepped aside" from the accustomed order of things by plunging headlong from his carriage, and thus "became, strangely enough, a man endued with preternatural intelligence, but from whose mind all knowledge of human and terrestrial relations had subsided."

On awakening to the new personality, a terrific encounter took place with his physicians. He could not recognize them as his fellow-men. Now fully recovered, he remembers distinctly the events in this crisis of his life. In his autobiographical sketch he declares: "The first return to consciousness may be understood only by comparing it to the birth of a person possessed immediately of matured mental and physical functions." During the first rudiments of consciousness there was absolute lack of knowledge that an outside world was in existence. The eyes were closed; there were no sounds to be heard; the power of motion was not yet known. We quote him:

"Simple memory would represent it as a period of many years, so great was the mental activity and so wonderful were even the meagre facts of consciousness. But the fact that absolutely no motion was made, even of the eyelids, and that no sound was heard, although the room was full of watchers, apparently indicates that the state was of but an instant's duration. In fact, later experience which left on me the impression that would now be made by the life-happenings of many years, really continued only for a few moments, according to the positive testimony of others who observed them. Thus, if memory, with its present habits of comparison, was to be trusted for a verdict, my life for the first few days would be declared to cover a few centuries, and this impression has been corrected only by force of the most vigorous reasoning on my part and the exercise of the perfect power of the will in forming beliefs."

* Publ. D. Appleton & Co.

We find here, in passing, an odd confirmation of the Kantian dictum that time and space are but *a priori conceptions* of reason, in no wise related to experience; also of the fact that in dreams, happenings that would consume long periods of time are conceived in a single instant.

In this former state Mr. Hanna was a fine scholar, an architect, a journalist, an excellent musician, and a thorough musician. And we hasten to add that no Mr. Hyde-like propensities of an evil sort occurred during his peculiar experience. He was twenty-three at the time of the accident and was then attending to his ministerial duties. He was of good family, sociable, well liked by his congregation, and was an altogether sensible and normal man.

In his new state, his eyes were opened to a world of moving shadows. He found himself capable of movement; the shadows he thought a part of himself. He put forth his arm, which came in contact with one of them, and to his alarm, it resisted. The shadows multiplied and the force against him redoubled. He had, in fact, attacked his physicians with herculean strength, and in the struggle he worsted them. He was, however, finally bound, and put to bed. No one yet understood his predicament—from his viewpoint—and they thought him insane from the blow on the head received by his fall. He recognized neither objects, words, or persons, nor dimensions—length, breadth and depth; nor the color of objects. External things formed a great picture against his eyes like a painting, with no sense of spatial relations. There was no conception of the flow of time. External movement alone fastened his voluntary attention, and seemed to fascinate his gaze. He became intensely hungry, but could not interpret his desire; he had to be fed by fluids placed far back into the pharynx.

He could not understand human speech. But after the struggle with the doctors, his intellect and perception, sharpened by the precariousness of his position, grasped the notion that there was a difference in persons, and that by lip movements and sound productions, they elicited from each other responses which were frequently followed by definite actions. Without even slightly knowing their meaning, he imitated their suggestions and observed that thereby he attracted attention.

They had to teach him to talk like a child. He made great progress, learning first the names of concrete objects, and very soon the expression of abstract ideas. In six weeks, the secondary personality was so trained and educated, that he could explain lucidly what had taken place since the accident. He naively described his discovery of himself as a human being. He had been kept in bed and those about him were dressed. "I said people"; that meant them all. Mr. S. told me that I was people, and he told me I was a man—same

as he was; and I did not believe that. I began to ask him why I could not have clothes on like other people. That was after I had learned to talk a great deal."

It was difficult for him to differentiate the sexes; they were "two strange kinds of human beings. He was engaged to a lady, whom in his secondary state he did not know. He was questioned whether any subconscious feeling of recognition and love could be revealed:

Q.—Do you enjoy rather to look at a nice-looking woman than at a nice-looking man? A.—I do not know; it does not make so much difference. If it is a picture, they must be very nice-looking to enjoy, but if it is a person, I like to hear the voice. The voices of women are softer and more pleasant to hear.

"Q.—Would you have any desire to kiss or embrace a woman whom you liked very much? A.—Yes, my mother or sister."

With life outdoors his mental horizon expanded amazingly, and the new personality became speedily accoutred with all the aids of prolonging and preserving its identity in the world. But once his mind let go its hold on some unimportant matter, and for the first time in his new existence he learned what it meant to forget. This profoundly impressed him and made him comprehend the references by friends to his obliviousness of his former life. Then the well-directed efforts of his physicians resulted in disconnected pictures, scenes in his previous existence, being aroused in his dreams while sleeping. From this time their efforts centered on restoring the primary personality. Among many experiments that were made was this: During a restless early morning sleep, questions were put to him in his half-awakened state, and his answers showed that he was dreaming over old scenes. He was describing a climb up Mount Jewett, when suddenly he was asked if he knew his fiancée. He laughed, regarding the question as irrelevant, and said, "I don't know her yet; I know her later. From her to Mount Jewett is a year." This was a correct statement. The personality was in a peculiar psychic state, in which it was able to foresee its future life. It was as if there were prescience of what was to take place in the distant future.

Mr. Hanna was one evening taken to New York, where the stimulation of new surroundings had the effect that early the following morning he recovered his submerged personality. He described his ride from Meriden, Conn., on the night of the accident, and complained of soreness and exhaustion, which he ascribed to his fall of "last Thursday," the accident having, in fact, occurred some seven weeks before. He was told of his secondary existence, of which he was ignorant, and within an hour, elapsed again into that state.

Then came the strangest feature in this case, which strongly resembled that in Stevenson's story. Dr.

Jekyll, we recall, was restored by a powder, which Hyde took, until finally the more powerful personality of Hyde prevailed. A drug (*cannabis indica*) was also used in the case of Mr. Hanna, but with this difference—that partly by the unremitting efforts of his physicians, and partly by his own will, his original personality gradually gained reascendency over the second nature and won the psychic struggle.

In his dual life Mr. Hanna alternated until on June 14, while visiting a psychological laboratory, he for the first time caught a glimpse of both personalities simultaneously, and yielded to the inducements of his second nature. His responses to persistent questioning during the transformation, "indicated now the presence of the primary, now that of the secondary state, and now of the simultaneous presence of both." There was an intense mental struggle, which was fought out that afternoon, where he lay, on a couch in his physician's office, "in a state of agonized abstraction. It was a bitter and a critical period of his life." Two alien individuals had arisen in his consciousness to dispute the possession of his mind, each claiming to be his veritable self. To renounce either was to blot out his own existence. The result was, a reconciliation of both and their fusion. States Dr. Sidis:

"These two formed individualities, seemingly mortal foes, confronted each other for a long period of time, and in their very struggle recognized their intimate relationship, if not their relationships of identity. It seemed as if each said to the other: 'Thou art my mortal foe, and yet thou art bone of my bones and flesh of my flesh!' For each personality to crush, to suppress the other, was now out of the question; the difficulty, the problem, for them, was how to form a unity; how to become synthetized into one conscious personality. The task was a difficult one, and could be achieved at a loss of much mental energy. Hence, the sluggishness of psychomotor activity, the slowness of movement, of speech, of reactions to external stimuli; hence, the retardation of the whole stream of consciousness," etc. Mr. Hanna has fully recovered, the detached portions have become dovetailed, the two sharply-defined personalities have been fused into one normal personality.

Dr. Frank P. Foster has just passed the quarter of a century point in the editorial fraternity. As editor of the *New York Medical Journal*, he has earned a world-wide reputation for all that is good in our profession. The *TIMES* offers its sincere congratulations and best wishes.

An Enterprising Stork.—A Rhode Island physician, Dr. W. F. Barry, of Woonsocket, reports one day's obstetrical work as follows: At 12.30 P. M., he attended a twin delivery—two girls; at 6 P. M., of the same day, another—two boys; at 3.30, of the following morning, another—two boys, "making three cases of twin pregnancies within twenty-four hours."

A LESSON IN COURTESY.

THE following is a story that was told the other day by a non-medical friend. It is reliable and deals with real persons, though we have no information as to their identity.

Dr. X, a man of some prominence and reputation, was called in consultation to see a telephone girl who was suffering from typhoid and who had been in a condition of stupor, not even recognizing members of the family, for some hours. Neither the patient nor her family, by the way, knew Dr. X by sight, nor had they ever met in any way. Before Dr. X even saw the patient, she was aroused from her stupor by hearing him speak in the next room. "That voice! Oh! that dreadful voice!" shrieked the patient. "I know that voice," she continued, "that is Dr. X. Take him away!" Not to attempt an exact reproduction of the melodramatic scene that ensued, the patient became so violent that it was impossible to hold the intended consultation. On inquiry, it was found that Dr. X was well known, by reputation, to practically all of the telephone girls, and that those who worked on his part of the switchboard were well acquainted with his voice and his vocabulary. The patient, who had been especially exposed to his abuse, had for some time been on the verge of hysteria on account of it, but had failed to complain, at least effectively, partly through disinclination to oppose a man of some means and influence, partly because she was unwilling to repeat the insults to which she had been subjected and which were said to be not merely profane but obscene.

Most of us know the sins of commission and of omission of a telephone switchboard, and many of us feel that the Bell Telephone Co. rather than ourselves, will have to answer for the profanity that it has caused. We are inclined to condone an impersonal Damn, with no definite subject nor object, but not even poor instruments and inattention justify a man in personally and objectively swearing at a woman, much less in using language that a decent woman would not repeat to save herself from further insult. And certainly, when one man becomes conspicuous by reason of his language over a telephone, not much can be said in extenuation.

Refinement of language is an art that should be cultivated by physicians, for it leads to refinement of thought. We recall a clergyman who compared the devil to a skillful fisherman, baiting his hook with different natural and artificial attractions, according to the tastes of the individual for whom he was fishing. "But," he said, "there is a fish called the gudgeon that will bite on a bare hook, and when the devil catches a man through the sin of profanity, he catches a gudgeon, for the devil gives him nothing at all as a bait." It is peculiar that we feel inclined to apologize for touching on theologic matters, even in discussing a subject that illustrates about the only practical, everyday indication that our modern civilization has a religious basis. We do not agree with those who plead for a more common use of religion. Eastern peoples may, with all sincerity, pray in public, discourse among chance acquaintances upon matters of faith and then go their way to cheat, murder or steal. We rather feel that the tendency of western civilization to avoid religious discussion and the public demonstration of one's faith, really depends upon a respect for religion and a sense of delicacy at baring one's private and most sacred thoughts before the crowd. This being the case, why should the

existence of the Deity, the prime points in the Judaic and Christian theology and especially the painful beliefs of orthodoxy, be used to indicate the passage of every emotional breeze? Why should a man who would be ashamed to pray in public, advertise his religious views by swearing and, if they are not his own religious convictions, but those of another, why should he bring them thus to public notice?

Profanity has been said to be, for men, what tears are for women, and this is very near the truth. Profanity and tears are a manifestation of hysteria, and hysteria is a mild form of insanity, yet the relief of nervous tension, either by swearing or crying or by kicking the brick over which we have stumbled, does, to a certain degree, prevent the development of more serious nerve strain. When we kick the brick, we are ashamed of ourselves, because we cannot hurt the brick and may hurt ourselves a second time. When a man cries, he is also ashamed of himself, although crying is a natural reflex, which does no harm, which should be encouraged, for adequate causes, on pure prophylactic grounds, and which is susceptible of a rational, physiologic explanation, in accordance with well-known laws of evolution. When a man consigns a brick to hell, he does not feel ashamed, though it is just as silly to expect a brick to suffer from fire as from a kick. Swearing at human beings is to a certain degree logical, though it is usually the expression of a silly hyperbole. Indeed, swearing usually becomes merely a reflex, with no more realization of the sense of the words used than of the fact that tears, expressing mental suffering, date back in evolution to the assuagement of ocular pain and irritation by lubrication. Swearing is, however, a purely artificial reflex in its origin, and is unknown among primitive peoples, even those having well-defined conceptions of theology. It seems to have reached its highest development in the Christian English and Spanish-speaking peoples. Considering how purely unconsidered most profanity is, we are inclined to believe that it deserves the criticism offered by an English society lady—"It is worse than wicked, it is vulgar."

Obscenity, by a curious paradox, is possible only when man has reached a stage of moral and social evolution in which right and wrong are clearly recognized. So long as one part of the body is not distinguished as more or less worthy than another, so long as the gratification of one appetite is no more and no less a matter of course than that of another, so long as society remains a haphazard choice of acquaintance, obscenity is out of the question. When these various ideas have developed, man becomes interested in those things and actions that are out of harmony and incongruous. Incongruity is the essence of wit and anything indecent is funny and attractive, because it is incongruous. But, as a man's intellectual stature increases, he becomes less interested in the peculiar, the exceptional, the warped and discolored, and more interested in the normal, regular, and perfect. We would not go so far as to say that an appreciation of wit and humor is an indication of inferiority, provided that it is not carried to an extreme. Neither would we altogether condemn an enjoyment of impropriety, in so far as it is really ludicrous and incongruous. We cannot forget that such enjoyment was the relaxation and tonic of one of the best men that America ever produced, one who stands out more and more as its greatest and strongest guide and ruler. But mere obscenity which has no point nor ex-

cuse and which serves only to daub with mental ordure everything and everybody within reach, is wicked in the peculiarly exasperating way of being destructive without doing even temporary good to the perpetrator.

As we have said, low and evil words not only spring from, but, in turn beget, low and evil thoughts. We are not preaching a sermon and we need not waste time on the obvious moral laws involved. But we venture the assertion that a physician who cannot control his own temper nor tongue, cannot direct his mental energies nor guide his hands in attempting to solve medical and surgical problems so well as the man who does not expect the powers of heaven and hell to respond to all his little troubles. Neither do we believe that one can make filthy words his bodyguard without losing the intimacy with dignity, devotion and diligence in more serious matters, which the scientific student and trusted physician ought to enjoy.

The Twentieth Annual Report of the Directors of the New York Post-Graduate Hospital, for the year ending October 1, 1904, has been received, and it is an exceedingly well-written description of this important charity, which forms a part of the Post-Graduate Medical School.

It must be a great satisfaction to Dr. D. B. St. John Roosa, the founder, and the President of the Corporation and of the Faculty, to watch the phenomenal growth of this excellent institution, conceived as it must have been, with many misgivings, now upon a plane of unquestioned success. The average daily number of patients in the hospital during the year has been 167, classified under a great variety of diseases.

If any of our readers are considering the question of post-graduate study, we would suggest the sending for a copy of this report, which gives a good idea of the facilities offered the student at this school.

We are glad to notice that the directors have taken every pains to guard against persons availing themselves of the benefits of the dispensary, who are not justly entitled to receive them.

Vaccination in the Public Schools has received constitutional standing by recent decision of the Court of Appeals. The Commissioner of Health says:

"As to whether the legislature is prohibited by the constitution from enacting a law excluding unvaccinated children from the public schools, the opinion holds that right to attend public schools is necessarily subject to restrictions in the interest of the public health, as in the case of those having a contagious disease, and if vaccination strongly tends to prevent spread of smallpox it logically follows that children may be refused admission until they have been vaccinated. The police power which belongs to every sovereign state, effects no invasion of the constitution when the sole object and general tendency of legislation is to promote the public health."

The Chancellor of New York University states that twenty years ago the number of medical students in this country was 10,600, of whom 2,085 were in this state, and 1,979 in the city. At present there are in the country 26,821, in the state 2,374, and in the city only 1,800, a rather remarkable showing. It cannot be claimed that the decrease is due to lack of facilities, because there are more medical schools to-day than twenty years ago. It must be due to some other cause.

BIBLIOGRAPHICAL

Gallstones and Their Surgical Treatment.—By B. G. A. Moynihan, M.S. (Lond.), F.R.C.S., Senior Assistant Surgeon to Leeds General Infirmary, England. Octavo volume of 386 pages, illustrated with text-cuts, some in colors, and nine colored insert plates. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, \$4.00 net.

The great and increasing importance of the subject of gallstone disease is a sufficient warrant for this publication, and Mr. Moynihan's extensive experience in treating cholelithiasis specially fits him to write an authoritative and trustworthy work. A full account is given of the origin and causation of gallstones, and of the pathologic changes and clinical manifestations to which they give rise. Special attention has been paid to the detailed description of the early symptoms of cholelithiasis, enabling a diagnosis to be made in the stage in which surgical treatment can be most safely adopted. Every phase of gallstone disease is dealt with, and is illustrated by a large number of clinical records. The account of the operative treatment of all the forms and complications is full and accurate. The beautiful illustrations, a number of which are in color, including nine insert plates, are unusually clear and artistic, and form a special feature. We know of no book on this subject, which is more complete.

Diseases of the Liver, Gall-Bladder, and Bile-Ducts.—

By H. D. Rolleston, A.M., M.D. (Cantab.), F.R.C.P., Physician to St. George's Hospital, London; formerly Examiner in Medicine at the University of Durham, England. Octavo volume of 794 pages, fully illustrated, including seven colored insert plates. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, \$6.00 net.

Dr. Rolleston's classic work is undoubtedly the most voluminous treatise on diseases of the liver yet published in English. And more than that, we predict that it is destined to become an authority on the subjects of which it treats. The author has for many years made a special study of diseases of the digestive system, and his reputation in the treatment of hepatic diseases is sufficient assurance of the practical usefulness of his effort. The text includes all the affections of the liver, completely and clearly discussed, special attention being given to pathology and treatment. A large number of clinical cases are quoted, which will be found of great value to the practitioner in diagnosing individual cases. Besides Diseases of the Liver, the book contains articles on Diseases of the Gall-Bladder and Bile-Ducts, which are equally as trustworthy and authoritative as the section on the Liver. The illustrations, both those showing gross appearances and the microphotographs, are unusually excellent, and include seven colored insert plates of great merit. The mechanical appearance of the work is in keeping with the high standard of the text. There can be no hesitation in commending the work to our readers.

Diet in Health and Disease.—By Julius Friedenwald, M.D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Rührh, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Octavo volume of 689 pages. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, \$4.00 net.

This latest work on diet is practical and comprehensive, prepared to meet the needs of the general practitioner, medical student, hospital interne, and trained nurse. It contains a full account of food stuffs, their uses and chemical compositions. Dietetic management in all diseases in which diet plays a part in treatment is carefully considered, the articles on diet in diseases of the digestive organs containing numerous diet lists and explicit instructions for administering. The feeding of infants and children, of patients before and after anesthesia and surgical operations, and the latest methods for feeding after gastro-intestinal operations have never before been discussed with such practical detail. The subject of rectal enemata is given completely, with recipes and full instructions as to technic. Diet is considered in its relations to age, occupation and environment; and the beneficial results from the rest cure have been accorded prominent consideration. There is also a section on food adulteration and the resultant diseases. The work is well worthy the reputation of its authors, and we most cheerfully recommend it as a useful handbook.

Saunders' Medical Hand-Atlases: Atlas and Epitome of General Pathologic Histology.—By Dr. H. Dürck, of Munich. Edited, with additions, by Ludwig Hektoen, M.D., Professor of Pathology, Rush Medical College, in affiliation with the University of Chicago. With 172 colored figures on 77 lithographic plates, 36 text-cuts, many in colors, and 371 pages of text. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, \$5.00 net.

This new volume in Saunders' Medical Hand-Atlases is a worthy addition to the series. Accepted views regarding the significance of pathologic processes have been concisely stated, conflicting theories having been omitted. The illustrations are from original specimens without combining different microscopic fields, extraordinary care having been taken to reproduce them as near perfection as possible. In many cases as high as twenty-six colors have been required to reproduce the original painting. In editing the volume, Dr. Hektoen has incorporated much useful matter; and unquestionably this atlas will be as favorably received as the previous volumes on Special Pathologic Histology. It will be found of unusual value to the general profession.

A Manual of Personal Hygiene.—Proper Living upon a Physiologic Basis. By American Authors. Edited by Walter L. Pyle, A.M., M.D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. *Second Edition, Revised and Enlarged.* 12mo volume of 441 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Bound in Silk, \$1.50 net.

A short time ago, we gave Dr. Pyle's work our approval, and the new second edition, just issued, is evidence that his work has been well received. Personal hygiene is applied physiology, and a proper understanding of certain elemental truths on practical human physiology must be first acquired before it can be applied. Knowledge of the normal functions of the body and simple methods of keeping them in healthy action is the one thing that no educated person should be excused from possessing. The ordinary instructions in physical education, physiology, dietetics, and exercise is not sufficient, and often faulty. Dr. Pyle has selected eight prominent American physicians, each writing upon

his chosen specialty, and setting forth the means of health in this "Manual of Personal Hygiene," with a *simplicity, conciseness, and authority* that has never been approached in any similar work.

In this new second edition there have been added, and fully illustrated, chapters on Domestic Hygiene and on Home Gymnastics, besides an Appendix containing methods of Hydrotherapy, Thermotherapy, Mechanotherapy, and First Aid measures in medical and surgical accidents and emergencies. Physicians could render no better service to their patients than the recommendation of this book.

The Mnemonic Similiad.—By Stacy Jones, M.D., author of "The Medical Genius" and of "The Bee-Line Therapia and Repertory." 347 pages. Cloth, \$1.00. Postage, 7 cents. Philadelphia: Boericke & Tafel, 1904.

The author says he has endeavored to introduce a scheme for aiding the memory in grasping and retaining groups of remedies having a general indication in common. The book is issued in the interest of symptomatology.

One Hundred Years of Publishing (1804-1904).—A brief historical account of the house of William Wood & Company. Illustrated. New York: William Wood & Company, 1904.

A business house with such a record of time has a right to be proud of it, and we congratulate it, both for this and for its achievements in medical publishing. As the founder of the *Medical Record* and the publisher of many high-class books, this firm should be ranked as one of the first in the world.

Clinical Hematology.—A Practical Guide to the Examination of the Blood with Reference to Diagnosis. By John C. Da Costa, Jr., M.D., Demonstrator of Clinical Medicine, Jefferson Medical College; Chief of Medical Clinic and Assistant Visiting Physician, Jefferson Medical Hospital; Hematologist, German Hospital; Assistant Visiting Physician, Philadelphia General Hospital; Fellow of the College of Physicians, Philadelphia. Second edition, revised and enlarged, containing nine full-page colored plates, three charts and sixty-four other illustrations. Philadelphia: P. Blakiston's Son & Co. 1905. 591 octavo pp. Price, \$5.00.

The original data of this excellent book are based upon the records of some ten thousand blood examinations in large hospitals. This new matter relates more especially to the primary anemias, malignant disease, cholelithiasis, icterus, pancreatitis, gastric ulcer, pneumonia, septicemia, and suppurative lesions.

Great progress of practical value has been made since the last edition was issued, so that in order to keep abreast the times, one must have this edition. The detailed revision of the text has been supplemented by the addition of a new colored plate and numerous other illustrations. The purpose of this book is to interpret the subject at its true value as a clinical sign, and for this reason it should be especially welcomed.

How to Study Literature.—A Guide to the Intensive Study of Literary Masterpieces. By Benjamin A. Heydrick, A.B. (Harv.), Professor of English Literature, State Normal School, Millersville, Pa. Third edition, revised and enlarged. 150 12mo pp. Price, 75 cents. Hinds, Noble & Eldridge, New York, 1904.

The author well describes that the aim of this manual is to facilitate the appreciative study of literature as litera-

ture; to concentrate the attention upon the text itself, not upon explanation or comment. It furnishes means by which the student can ascertain for himself the chief characteristics of the book studied. Not to present ready-made opinions for his acceptance, but to help him to see for himself and to judge for himself is the design throughout.

Normal Histology and Microscopical Anatomy.—By Jeremiah S. Ferguson, M.Sc., M.D., Instructor in Normal Histology, Cornell University Medical College, New York. With four hundred and sixty-two illustrations in the text, many in colors. 738 octavo pp. Cloth, \$4.00. Half leather, \$4.50. New York & London: D. Appleton & Company, 1905.

The appearance of a new text-book in this field needs no apology, when the aim is to present in a single volume, a sufficiently comprehensive view of the subject, to briefly cover the entire field in which the medical student must now become proficient.

Unusual space has been devoted to the microscopical anatomy of the central nervous system and the organs of special sense,—two most important points.

In this work, the author has endeavored to present a treatise of sufficient scope to supply the demand of the specialist, as well as the requirements of the extended courses of study and laboratory work offered by the modern medical college.

The volume is well illustrated with 462 figures, 222 of these being original drawings and photomicrographs, prepared from microscopical specimens, which have been in actual use in demonstrating the subject to the medical student. No pains have been spared in the reproduction of these figures to preserve their accuracy, and it is believed that they will prove of great value in presenting to the eye and the mind of the reader a precise conception of the minute anatomy of the human body.

The value of the book for teaching purposes is unquestioned.

The Diagnostic Value of Leucocytosis.—Every measure which has for its object a proper and better understanding and differentiation of disease is valuable for the practicing physician. With regard to leucocytosis, McCaskey (*Am. Jour. Med. Sci.*, Dec., 1904) finds that: A routine enumeration of the white cells in the peripheral blood is of sufficient importance to be made a regular procedure so far as possible in all cases; a single leucocyte count is quite insufficient for a conclusion in any given case, and should be followed up by several made under different conditions; an increase beyond 10 or 12,000 leucocytes indicates varying grades of intoxication, with chemotactic substances of some sort or other; whether it indicates suppuration or not is a question to be determined by carefully weighing all the facts in each case; neutrophile leucocytes indicate suppurative and allied processes; the eosinophile variety indicate among other things, "perhaps principally," cutaneous or parasitical diseases in the intestine or elsewhere; lymphocytosis signifies an imitative lesion of the lymphatic apparatus. A differential count should be made in all cases to determine the type of cell which has been the subject of the principal increase where such increase exists, and such records should be carefully kept and collated as a basis for the determination of the clinical significance of leucocytosis in the future. In the diagnosis of malignant disease, a leucocytosis is of very subordinate value, and when present, is probably not due to the malignant disease, *per se*, but to coexisting chemotactic toxins.

THE CLINIQUE

ADVANCES IN THE STUDY OF BLOOD.

Two years ago Bier performed a series of interesting experiments by the transfusion of blood from an animal of one species to one of another. Starting with the idea that the animal organism can accustom itself to very varied conditions, he attempted to accustom rabbits to injections of lamb's blood; at first the animals appeared to agree with the theory, and then, as the dose of blood was increased, they suddenly died with all the manifestations of transfusion collapse, the autopsies showing capillary congestion of the intestines, spleen, liver, lungs and kidneys. The symptoms of transfusion are dyspnea, with bloody expectoration, flushing, subjective heat of the skin, pain in the back, and increased peristalsis, with some fever. The increase in the symptoms may be due to the fact that the blood of the receiving animal gradually acquires increased hemolytic qualities, and may, in the end, dissolve its own corpuscles. Nevertheless, as by transfusion it is possible to combat severe anemias, or to bring about conditions of hyperemia, Bier undertook a series of clinical experiments in the following manner: Blood was obtained from a lamb and carefully defibrinated under aseptic precautions, then a needle was thrust into a distended vein at the bend of the elbow, the pressure above removed, and injection commenced. As a rule, a syringe holding 50 cc. was employed, and the injection continued until slight symptoms of transfusion appeared. It was found that at first larger and larger quantities could be used, then suddenly only very small quantities. He reports in great detail the case of a man 22 years of age, who had severe tuberculosis of both sacro-iliac synchondroses, which has suppurated and broken through the skin at numerous places. He was given ascending doses of lamb's blood until 10 ccm. had been injected. After this it was found that only smaller and smaller doses could be used until finally only 1.5 ccm. could be employed with safety. The general condition of the patient improved remarkably; the suppuration almost entirely ceased; the appetite increased, and the weight improved.

Schleich, ten years ago, proposed dried blood serum as an ideal dressing, after an extended experience with sterilized blood serum and other albuminous bodies; this serum powder is obtained from the blood of oxen by a process of desiccation; it may be used pure or mixed with iodoform and dusted on the wound. Nuclein effects the separation of necrotic material lying in the wound; it acts directly upon dead and dying tissue, but spares absolutely and entirely the healthy cells. Mixed with serum powder or serum paste in the proportion of 2 to 3 per cent., it produces a marked and immediate effect, so that the line of separation between the dead and living tissue sometimes appears as sharply marked as though made with a knife. The serum is composed of the powdered serum, water, oxide of zinc and wax mixed to the consistence of honey. Any of the common medicaments used in the treatment of skin disease can be added to this paste. Other preparations Schleich uses are the serum powder mixed with salicylic or boric acid, or with dermatol; serum powder with 10 per cent. nuclein, serum paste with ichthyol, lysol, chrysarobin, etc., or with nuclein, 10 per cent., or with 23 i-3 per cent. This suggestion has never fully met with approval from the profession.

Between 20 and 45 years the blood-pressure is relatively high, the aorta and the other large arteries increase in diameter from the stress of the blood-pressure on their elastic walls, and the heart increases in size year after year at a nearly uniform rate; anatomic evidence of the great functional vigor and activity of the circulation in manhood. At 45, while the arteries continue to increase in circumference, the blood-pressure falls and the heart begins to diminish in size. These three features characterize the circulation for the next 20 years. This fall in the size of the heart is to be accounted for, partly by the widening of the arterial trunks and the consequent fall of pressure; and partly by the reduction of mechanical stress, due to comparative bodily relaxation, loss of vasomotor tone in the splanchnic area, and the chronic diseases from which the patient may suffer. The blood becomes more venous in quality and its hemoglobin value is lowered. At 65, the decline of circulatory energy and the effects of time on the protoplasm of the cells of the body have so lowered the metabolic and functional energy of the tissues and organs and the activity of the blood supply, that a considerable proportion of the capillary network becomes obsolete. The peripheral resistance is thus increased; the blood-pressure rises; therefore, the heart once more increases in size, so that at the end of 10 years, it is found as large as it was at 45, and at the same time the hemoglobin value of the blood again proves to be higher. As age advances, the arteries naturally become wider, longer, and thicker, and altogether larger than in early life, and we must not speak of vascular degeneration in an evil sense as often as we find these conditions present. The heart may remain structurally sound, and is more often regular than irregular, to the most advanced years of life; these facts suggest that actual diseases of the arteries and heart are not properly senile in their nature. Physical stress is a definite cause of cardiac and vascular damage in the second half of life, in the forms both of sudden, violent exertion and of ordinary laborious occupations. Bruce has met with instances of acute and serious strain at all ages over 40, up to and even after 70; in the majority of instances one or more of the safeguards of the circulation against strain were already defective or wanting. The principal safeguard is the presence of well-nourished, healthy cardiac walls. Two-thirds of the cases of cardiac strain in the second half of life presented a history of perverted metabolism.

In many cases the occurrence of strain was but the latest of a series of similar events; the heart had been strained originally in youth or early manhood, and had given serious trouble as often as it was taxed again. Rowing or running at college was in a good many instances given as the cause of the first strain. Previous valvular disease, usually of rheumatic origin, is a condition powerfully predisposing to cardiac injury by physical exertion. Again, the metabolic disorders, including gout, that weaken the cardiac walls, are among the common causes of arterial degeneration, and the two influences, rheumatism and perverted metabolism, acting together, no doubt are accountable for a considerable number of cases of atheroma and chronic arteritis. It is unwise, ill-timed, ill-planned muscular exercise that injures the circulation, usually on the part of the middle-aged man, who, awaking to the consciousness of growing fat and gouty, rushes inconsiderately to violent exercise for relief. Many cases of disorder

and disease of the walls of the heart and arteries originate in distress, worry, anxiety, and protracted suspense; and the connection is most often seen in middle and advanced life because these depressing emotions fall most heavily upon mankind at this period. Alcohol undoubtedly plays an important part in many cases of cardiac failure that are regarded as due to overwork, worry and nervous exhaustion, both in men and women. Many of the complaints of nervous depression, lowness, and worry are really due to gout and to influenza. Disturbances of metabolism, including gout, are by far the most prolific cause of cardiovascular disorder and disease after 40, at any rate, amongst the middle and higher classes. Whatever the date of the primary infection, syphilis is a standing danger to the heart and arteries in the middle-aged man, and even in declining years. Acute and chronic diseases explain many cases, while the origin of other cases of cardiovascular disease is explained by the existence of emphysema and other chronic diseases of the lungs and pleura. Chronic Bright's disease threatens the function and structure of the heart and the arteries, and in many instances the different influences that threaten the circulatory organ act together in different combinations. There are some persons whose hearts and arteries cannot carry them through the wear and tear of what may be called everyday life for more than 40 or 50 years.

The determination of the influence various physical conditions have upon the composition of the blood is most necessary to a proper understanding of the alterations met with in certain diseases, for example, the effects of increased and decreased blood-pressure, of alterations in the excretion of water, of heat and of cold, of food and drink, and other conditions, enter into the establishment of various states of the blood met with in diseased conditions. Schwinge has instituted investigations concerning the amount of hemoglobin in the red corpuscles, the number of these corpuscles, and the number of white corpuscles in various stages of life and under various physiological conditions; his results are summarized as follows: The amount of hemoglobin and the number of red corpuscles varies in the different periods of life: after birth both hemoglobin and red corpuscles are present in greatest amount. This time there is a decrease which, after the first year and during the period of growth, is replaced by an increase that is subject to periodic variations, but reaches its highest point between the thirtieth and fiftieth years; there a decrease during the latter end of life occurs. The number of leucocytes decreases during the active period of growth, to increase in the latter part of life. During the sexual activity females show smaller counts and a lesser amount of hemoglobin than do men, while after the climacteric the conditions in the two sexes become almost the same. The reasons for the difference seen in the two sexes are not wholly clear, but probably a certain amount of it is due to the fact that females, as a rule, take a relatively less nourishment than do males, the effect of ingestion of food being to increase the hemoglobin and corpuscles. In Schwinge's estimations, the red corpuscles reached the maximum directly after the meal, the count remaining high for some hours, then decreasing rapidly to increase again, while the hemoglobin increased rapidly, fell very rapidly, and reached its minimum within an hour after meals. Another cause of the lesser amount of hemoglobin and lesser number of red corpuscles in

women is probably to be found in the loss of blood in menstruation. Pregnancy does not seem to cause any anemia, but in one case examined by Schwinge lactation, under normal circumstances and not carried beyond the normal period, seemed to produce a moderate anemia; he suggests that it is possible that lactation is an element in reducing the blood-counts of females. Probably the most important cause is the change in the relative concentration of the body fluids and of the blood rather than active changes in the total amount of the constituents of the blood. Such changes in the concentration of the blood may be observed in the newborn, the high blood-counts found in them being largely due to a relative thickening of the blood, owing to the tissues taking up water to replace that lost in the first days of the establishment of the functions of respiration and perspiration. To conceive of any other cause for the sudden striking variations in blood-counts, in normal individuals, than differences in the osmosis from blood-vessels to the tissue is hard. Such variations in the concentration of the tissue fluids and of the blood, relatively to each other, are of great importance in explaining the differences in concentration in the advanced periods of life, the body tissues abstracting relatively more water from the blood in the later periods of life. The high counts of leucocytes which are found in youth are possibly due to an especially active formation of these corpuscles. Edgecomb investigated the effects of exercise upon the hemoglobin, especially with regard to the value of rest in the treatment of anemia, and among his conclusions are the following: There is a normal daily and nightly rise in the corpuscular value representing daily destruction and formation of haemoglobin. Active exercise, of course, increases the wear and tear. It also stimulates a slight over-production of haemoglobin. Passive exercise, such as massage, decreases the volume of the blood, but has no effect in diminishing or increasing the amount of hemoglobin. Rest reduces the extent of the daily fall in consequence of diminished destruction.

An editorial some years ago in the *Philadelphia Medical Journal* on the Fallacies in the Chemistry of the Blood, states, although the examination and estimation of the corpuscular constituents of the blood are approaching a stage of perfection, and although the hemoglobin can be estimated to a nicety, much of the chemistry of the blood is still to be discovered. This expansive field of research is fraught with many difficulties. The mineral constituents of the blood have been estimated almost without exception from blood-ash. Unless scrupulous precautions are observed, a portion of the chlorine and the phosphoric acid is lost. The distribution of acids and bases in the blood taken from the body is different than in the ash; acid salts become neutral or basic, carbon dioxide is produced while the ash is being formed, and may be left behind combined with the bases; furthermore, the carbon dioxide originally present in the form of carbonates, may escape, while the acid phosphates become transformed into neutral ones. Even the iron shows an erroneous picture, because the iron that previously had been combined with albumin may also go over to the phosphoric acid, leaving no clew regarding the distribution of the iron in either organic or inorganic combinations. Another fallacy is that the greater part of the sulphuric acid found is derived from the sulphur in the albumin combinations. Liebig has shown that the amount of

sulphur in meat juice is so small that it is almost indeterminate in a whole animal, but, as later investigators have shown, an enormous quantity of sulphuric acid is found in the blood-ash. This is due to the fact that during the formation of the ash, some of the organic acids are broken up and the sulphuric acid from the albumin combinations is liberated. The sulphuric acid liberated in this case, although it certainly has nothing to do with the mineral constituents originally present, may, nevertheless, be a marked source of error. Similar fallacies are present in the case of phosphorus, for only a portion of this substance which is found in the ash as phosphoric acid has been originally present as such. The amount of nitrogen is generally somewhat parallel with the amount of albumin, and consequently changes according to the degree of decomposition of the latter. In determining the amount of sulphates and phosphates, it will be found that the organic albumin combinations containing sulphur and phosphorus all enter into solution, and that finally, the sulphur and the phosphorus are again found as sulphuric and phosphoric acid.

Subcutaneous injections of artificial serum have a considerable action on the condition of the blood and their repetition produces a marked anemia. Labbe, from a study of 24 cases, concludes that the blood of the newborn contains a higher percentage of oxyhemoglobin than the blood of the adult. In healthy infants the blood contains from 15% to 16% of oxyhemoglobin. This proportion diminishes during the first ten days of extrauterine life to 14%. The blood always contains a high percentage of reduced hemoglobin. The various pathologic conditions in the nursing have a less marked influence on the quantity of oxyhemoglobin than upon the weight and the temperature; for example, in enteritis the loss of liquids by diarrhea and vomiting is very considerable and thus produces a relative concentration of the blood and the oxyhemoglobin is reduced in small proportion or not at all. In children who have been submitted to treatment by the subcutaneous injection of artificial serum, particularly when these injections are prolonged beyond twenty days, there is, in spite of a marked improvement of the general condition and a rapid increase of weight, a progressive diminution of the quantity of oxyhemoglobin. This constituent of the blood may suffer a reduction of as much as half its normal amount, so that it is present in about 7%, 8% or 9%. On this account the child presents a pallor of the skin which appears at first sight to be pathologic. This diminution of oxyhemoglobin is not due to the reduction of the red blood-corpuscles, because these elements are not altered by a 0.7% solution of sodium chlorid when the proportion mixed with the blood does not exceed one-fifth. The cause of the change should be sought, then, either in the dilution of the blood, which is incompletely compensated for by the osmotic phenomena between the blood and the lymph; or in the exhaustion of the hematopoietic organs which have been overworked by the task that the artificial serum imposes upon them.

Sabrazes and Mathis have studied the condition of the blood in zona. There are no marked changes in the number of red corpuscles or in the percentage of hemoglobin; nor do the red blood corpuscles present any alteration. The white corpuscles are above the normal on the first day of the eruption. This hyperleu-

cocytosis increases until the third day, then it decreases gradually up to the fifth day. The increase in the number of white cells is due to the polymorphonuclear neutrophiles and the eosinophiles. If the contents of the vesicles become purulent the number of leucocytes diminishes, returning to normal or slightly below normal, the loss being made up by the same varieties of cells that constituted the increase. The period of desquamation and desquamation is marked by a second hyperleucocytosis. Sometimes with the eosinophiles in greatest proportion. At the end of about two weeks the blood resumes its normal character. In the clear vesicles on the first day of the eruption the fluid was found to contain 79 per cent. of polymorphonuclear neutrophiles, 19 per cent. lymphocytes, 1 per cent. of large mononuclears, while the eosinophiles were very few in number or were completely wanting. During the following days the percentage of polymorphonuclear neutrophiles increases to 96 per cent.; the micro-organisms being in pure culture. On the sixth day the contents of the vesicles presented disintegrating polymorphonuclear neutrophilic cells associated with eosinophiles undergoing disintegration.

Wassermann and Schuetze describe the result which they have obtained by the method recently reported by Uhlenhuth. They injected human blood serum into rabbits, and found that the blood serum of the rabbits afterward had a specific action upon a solution of human blood, but upon no other blood excepting that of apes. The reaction occurred within twenty minutes or even earlier. It acted even with blood that had been dried for three months, and under these circumstances also was entirely specific. They decide that if a reaction occurs within a half hour to one hour, that the suspicious blood may be considered to be human blood if it had been tested by the serum of a rabbit that had been treated with human blood. A test should always be carried out with controls, using in the latter other varieties of blood. If the reaction occurs, and there is no possibility that the blood could be that of a monkey, one may decide positively that it is human blood.

Jaundice I.—We have still another condition to bring before you to-day. The woman is thirty-eight years old, she was born in Germany. Her health has usually been rather poor, and six years ago she was sick in the German Hospital. Before she came in she was taken with severe pain in the right side, beneath the border of the ribs, and with profuse vomiting. The stools were light in color. Her mind has been perfectly clear. She was jaundiced when she came in; there was no discoverable organic lesion, the examination of the liver and spleen was negative. The temperature on admission was 98 degrees, and since then it has been sub-normal almost always. This morning it is 97 degrees. The condition is typical of some liver disease. The skin over the abdomen is distinctly yellow. All over the abdomen are marks of an eruption, looking like an acne that has been scratched. There is undoubted jaundice, both from the condition of the eyes and the skin.

She has a simple attack of acute catarrhal jaundice. The books tell you that this is some inflammation of the mucous lining of the bile ducts; but my own belief is that the liver is in some condition of irritation, and

there is more than a mere catarrhal swelling of the bile ducts.

We have given this woman phosphate of soda, one tea-spoonful three times a day. It is found by experience that phosphate of soda is beneficial. Sometimes we use dilute nitro-muriatic acid. Calomel at the beginning is given to open the bowels. In treating these cases, the first question I ask of my patient is, "Have you diarrhoea or constipation?" and I first give something to relieve the symptom that exists; and my opinion is that where there is diarrhoea, the disease is much more apt to be severe, and I don't give phosphate of soda or calomel to make the condition worse. I do give muriatic acid.

The itching of which she complains is a very common thing in jaundice. I do not know why it is. I have ordered for her a simple bran bath at night. Sometimes a bath of salt and water, or a solution of common baking soda is good. We may order sometimes a hyposulphite of soda bath at night. The bran bath is prepared by having one quart of bran tied in a bag and soaked in very hot water for one hour. This extracts the mucilaginous principle from the bran. If you put the bran itself into the bath it sticks all over the patient; so I order it prepared in this way.

Jaundice II.—I am going to show a condition similar to this but much more serious. This woman is thirty-two years old, and she has been a hard drinker. The family have been healthy, and she was unusually strong and healthy. She has been married for some time, and had two children, but both died young. About two months ago she began to have attacks of vomiting, and since then she has lived almost entirely on milk. She is jaundiced for some time, she has had a slight cough, with a small amount of muco-purulent expectoration. She has had some fever ever since she came in, with the temperature all above the normal line. Even at a distance I think you can see this evident yellow color in her face, and the saffron color of the eyes. Her cough came before the history of vomiting. Her voice was resonant when she came in to the hospital, but since then she has lost her voice, and she has this aphonia. At the top of the right lung there is very distinct bronchial breathing, and there are many fine crackles which increase when I get her to cough. I am sure she has more than catarrhal jaundice, there is some inflammatory disease, some pneumonia of the lung, but I fear more than that. My idea is that she was attacked with tuberculosis of the lung that came on before the liver disease. But it is doubtful whether the disease in the liver is cirrhosis or tubercular disease. The likelihood is that she has tubercles.

Quinzy.—The patient is a negress, thirty-seven years old. She was in the hospital some time ago with quinzy. She came in November 15 with a sore throat. I got then a fairly good look into her mouth, and there was nothing to be seen but a little redness of the throat, in a day or two she began to have more pain, and she wouldn't open her mouth at all, so you could not see anything. By palpation there seemed as if there were a degree of hardness. There was a curious thickness of her voice. I said once that the only way of being positive as to diagnosis was by etherizing her. We gave her chlorate of potash and tincture of iron, and a gargle of chlorate of potash.

When I went into the ward yesterday I asked if she could open her mouth, and she said "Yes," it had

broken the night before. I remember being told that a physician should study the utterances of his patient. One physician boasted that he could tell on hearing a baby crying upstairs that it had earache! I think I could tell by this woman's utterances what was the matter with her. I was perfectly sure from her queer voice that she had abscess of the tonsil. This will usually do better if you leave it to nature to open it than if you open it yourself. If you once see a case of quincy and see how the patient cannot open his mouth you will appreciate the difficulty; and I show you this to impress upon you how sometimes diagnosis must be made and treatment followed without really seeing the case.

Simple Continued Fever.—I showed you this patient two weeks ago, and will mention enough of the personal history to recall the case to your mind. The present illness is an attack of rheumatism. She was admitted October 30. For two weeks before this she had not been feeling well, was suffering from headache, pain in the back and epistaxis; the stools were yellow and liquid, and she thought she had some fever. She came in with a little fever, it returned to normal, rose and fell again. The blood was sent twice to the City Hall laboratories for examination, and both times the report of the widal reaction was negative. I, therefore, consider this a case of simple continued fever. She was put on five minims of dilute hydrochloric acid three times a day. She is now taking that, and is quite convalescent.

This illustrates to you the difficulty of diagnosis. This would be set down in many cases as typhoid fever. She had a little fever for sixteen days; she had almost no other signs of typhoid. There was not the typhoid tongue, she did not have the spots (though being a negress these might not have shown); there were never characteristic stools in any way after she came in; and she does not show the condition of hebétude. Hence, I should not have considered this as typhoid, and on the reports I should call it simple continued fever. What I mean by this term is that there is an irritating cause which we have not discovered. When I was a young man these cases of doubt were all put down as malaria. Now the scape-goat on which all these things are put seems to be typhoid fever. I don't think it is wise. If ever we had means of ascertaining the intestinal condition here I don't think we would find any lesion.

I do not value the Widal reaction at all. Frequently a positive report is returned where there is no typhoid, and on the other hand, we have known of cases of typhoid where the report of the reaction was negative. We frequently have a positive reaction reported when the patient is known to be suffering from tuberculosis or some other disease.

Alcohol and Arteriosclerosis.—"A man is as old as his arteries," has now become an axiom of medicine. Such being the case, great interest attaches to the symposium on arteriosclerosis, in which a number of eminent men took part, in the section on practice at the Fifty-fifth Annual Session of the American Medical Association. The papers read are reported in the *Journal American Medical Association*, September 17, 1904. That on the relation of alcohol to this disease, by Dr. R. C. Cabot, interests us here. Dr. Cabot, with Duclaux, Ribbert, and others, is sceptical regarding the ill effects of alcohol upon arteries. Schrötter states in Nathagel's system of medicine, that "alcohol is considered by practically all writers on arteriosclerosis as the chief cause, or at

least one of the most important causes of the condition." Yet Schrötter himself seems to be somewhat dubious regarding the evidence on which the belief is founded. Cabot's researches have resulted as follows:

Only six per cent. of 283 cases of chronic and excessive alcoholism under 50 years of age showed any evidence of hardened arteries. Of 45 cases of arteriosclerosis examined, but 13 per cent. gave any history of alcoholism.

Of 656 autopsy cases of arteriosclerosis only 95, or 14.5 per cent., were under the age of fifty. Out of these 95 cases under fifty, in which arteriosclerosis was found postmortem, only 21 per cent., and if cases complicated by chronic nephritis are excluded, only 17 per cent. appear to have consumed alcohol in any notable excess.

All this does not seem a very dreadful showing against alcohol. In the discussion Dr. Stengel, of Philadelphia, declared that notwithstanding Dr. Cabot's evidence he remained convinced that alcohol is an important factor. Dr. Shattuck, of Boston, declared that causes in medicine are seldom single. A diseased state is generally the result of several factors the relative importance of each not being always easy to measure. While Dr. Cabot had shown that alcoholic excess is not alone and by itself a cause of arterial hardening, he had not shown that it was not and may not be a contributing cause, perhaps potent.

Other speakers added their opinions, which were generally not in conformity with those of Dr. Cabot, who, however, concluded his remarks by observing that when one is making investigations, or doing research work, he must confess to what he finds. What he did find was absolutely opposite to what he expected; but he gave the figures as he found them.

Hospital Air.—Certain observations set forth by Dr. E. C. Rosenow, on *Streptococci in Air of Hospital Operating Rooms and Wards during an Epidemic of Tonsillitis* (*Am. Jour. Obst.*, Dec., 1904) may well have general application as regards bacterial conditions in hospitals. Varying deathrates in the results achieved by surgeons may be thus explained.

Hospital air may undoubtedly become rich in pathogenic bacteria. It is not necessarily true that wound infection means contact infection. A due amount of attention must be paid to the condition of the air whenever much surgical work is done. For instance, the streptococcus seems to become more virulent or more numerous during an epidemic of angina due to this cause. Therefore, since this germ is more virulent during an attack of tonsillitis, operators, assistants and nurses having such an attack should be isolated and excused from duty. The operator, the assistant, and all connected in the handling of surgical material before and during the operation, should wear a proper mouth covering. We would suggest the Fraenkel contrivance, such as consumptive workmen should use. All sterile surgical material should be exposed to the air as little as possible. All operating rooms should be frequently fumigated with an efficient disinfectant. This need of rendering operating room air sterile was in the beginning of Listerism much more insisted on than it is at present. We recall the operations of our interne days, when the junior would wearily work his carbolic apparatus over the field of operation, in response to the admonition: "Let us spray" from his "house." We don't go to that length nowadays; but we should not

lose sight of the necessity of pure hospital air.

St. Bartholomew's Hospital.—This famous London institution is now greatly in need of funds, and the question is being seriously discussed of removing it to a much less costly site among more healthful suburban surroundings. This hospital has a somewhat unique history. It was founded by Rahere, the court jester of King Henry I. He had a conscience—an uncomfortable acquirement—which troubled him to the extent, that he made a pilgrimage to Rome, where he became ill, and being in fear of death, made a vow that if he recovered, he would build a hospital on his return. He did recover, and on coming home, had his recollection jogged by a vision of St. Bartholomew, who pointed out Smithfield to him as the best site for the hospital he had vowed to erect. It was then a most unpromising place, little better than a marsh, outside the city wall, and the locale of hideous executions. The land had little value, and was granted the jester by the King. Rahere first had the church built and then a priory. Being without means to pay for the building, he put on his cap and bells and started men carrying stone and mortar as a jest. The humor of the thing spread, and great numbers joined in the joke of erecting a building under such conditions. It was, however, built so well, that part of the original, dating from 1102, remains intact to this day. The original hospital was a part of the priory. On the dissolution of the monastery under Henry VIII., it passed to the crown, but was re-established as a hospital, with a royal endowment. Damaged by the great fire in the reign of Charles II., it was rebuilt at the beginning of the eighteenth century, and has been added to since. Harvey was for thirty-one years the prototype of our modern "visiting" to this institution.

Conservation of the Natural Resistance of Patients in Surgical Work.—A man was once run over by a car in such manner, that both his legs had to be amputated. The ambulance surgeon attended to his bleeding arteries, and then took him at once to the hospital. On the way thither and before the work of the operator, he behaved with amazing coolness. He had a cigarette lit for him, which he smoked, directing meanwhile the sending of certain telegrams which he declared were of the utmost importance with relation to his affairs. Having accomplished these matters, he threw aside his cigarette and told the surgeons they might go ahead. He died on the operating table. The chances are he need not have died, if he could have been made to conserve his strength during the precious minutes intervening between the accident and the operation. Every surgeon must have come upon experiences which have taught him that the balance between life and death has been decided by the factor of the conversation of the patient's energy. A master-surgeon, Dr. Robert T. Morris, has well considered this subject in a paper with the above title (*Am. Jour. Obst.*, Dec., 1904). Lawson Tait's remarkable statistics were in large measure due to his insistence upon this factor in his operations. He worked quickly, did no more than was essential in a given operation; avoided handling viscera unnecessarily; avoided disturbing the patient's mind with details about what he was to do, and carried in his presence an air of optimism; apparently treated his cases and his patients lightly. The repair of surgical injury, declares Morris, depends primarily, secondarily and finally upon a proper hyper-

leucocytosis—a manufacturing process carried on under the guidance of the sympathetic nervous system. The more we injure a patient by surgical work, the more we lessen the development of a protective and reparative leucocytosis, and the more do we lessen his natural resistance.

Among the common ways for lessening the natural resistance of the patient are: Prolonged administration of anesthetics: every one has seen, on the one hand, patients saturated to the danger line, and on the other hand, has admired the skill with which the expert anesthetist, by beginning with nitrous ether, changing from ether to chloroform, or *vice versa*, as the case demands, has skillfully and quickly avoided the shock which takes away from the patient some of his resistance. Prolonged operation is another way. Expeditious work, when not at the expense of completeness, conserves the natural resistance. Almost any patient is depressed by an hour's operation, no matter what its nature may be. But if we do quick work, can we make approximately complete hemostasis, and may not infection follow? Morris answers that if we operate so quickly that the patient retains his natural resistance, we do not need complete hemostasis, and the patient will absorb very rapidly the culture media that are left in the wound. The use of gauze packing in abdominal work is another way of lessening natural resistance. Some surgeons use so much gauze, that they may fairly be accused of committing taxidermy upon the patients. "It is easy to take away the resistance which would carry patients through if we did not attack them too severely with our surgery." We should operate quickly, get in and out quickly, disturb the viscera as little as possible, give as little anesthetic as will suffice; and thus, in leaving our patient alone as near as may be, we conserve his natural resistance "to such an extent, that I know of no more satisfactory cases to treat, in the feeling that we are accomplishing something, than cases of peritonitis. In appendicitis work, one will have such a list of recoveries that he may be accused of removing normal appendices." Washing and wiping unduly the peritoneal cavity is another way of lessening natural resistance. Morris insists upon surgical judgment; his observations are not for undergraduate students, but for experienced men. It is not essential for the surgeon to get *all* the septic matter out of a peritoneal cavity, all he needs to do is to turn the scale in the warfare between the bacteria and the leucocytes, and then leave the patient to do the rest. By quickly turning out most of the septic material without injuring the patient by the process, the tide of battle is turned, and the patient's natural resistance is conserved.

Acids in Gastric Medication.—Martinet (*La Presse Medicale*, 1904, No. 59, p. 469) gives preference to phosphoric over all other acids in gastric medication, using the following: Phosphoric acid 10 parts, acid sodium phosphate 20 parts, water 200 parts. One-half to one teaspoonful in a glass of water, wine or beer, to be drunk during the midday and evening meals. It may be used for long periods without any untoward effect whatever. This acid does not lessen the gastric secretion of hydrochloric acid; is quickly neutralized in the intestine and changed into sodium phosphate, a normal constituent of the blood; is eliminated in this form, at least in part, by the kidneys; lessen the acidity of the urine and tends to render the urinary tract aseptic; and acts as a tonic upon the nervous system.

An Antitoxin for Tuberculosis.—No doubt, in the course of time, every infectious disease, including tuberculosis, will have its antitoxin. And such a serum, if used early in the course of the disease, should be an element in the cure. Wahlen (*Gazette Medicale de Paris*, 1904, No. 29, p. 338) declares that the treatment of tuberculosis by tuberculous iodonuclein gives brilliant results when administered at the beginning of tubercle formation; if this has not been present more than a few months, an apparent cure is possible. From six to a dozen injections are essential. A solution is used, containing fifteen minutes to each injection: 5-100 of a milligram of nuclein, 1-1000 of a milligram of iodine, and 2-1000 of a milligram each of potassium iodide and sodium borate make up the solution. The adult dose is five minutes at first, gradually increasing to twenty; for an infant one, gradually increasing to ten.

A Lesson from England.—Our Consul at Hull, England, Walter C. Hamm, Esq., has presented a timely report upon the general physique of the population of that country. England "is now making a vigorous effort to remedy the physical deterioration of her working population, which has followed from past mistakes. She will succeed, although it will require a generation or two to restore the physical stamina she has lost. America could also recover from a similar condition, but it will be better if she is warned by the experience of others, and avoid the mistakes entirely." It was pointed out during the Boer War, that sixty per cent. of the population from which the fighting men of England were drawn, lacked the physique to endure the hardships of active military service in the field. A parliamentary committee of investigation reported that among these causes of deterioration were "overcrowding, pollution of the atmosphere, unhealthful conditions of employment, alcoholism, depletion of rural districts by the exodus of the best types, alleged diminished rate of reproduction among the better classes, bad and insufficient food, and bad conditions attending the life of children." That a very large percentage of the children of the poor in the English cities were underfed was amply demonstrated; in London, for instance, 122,000 or 16 per cent.; in Manchester, 15 per cent.

The Parliamentary Commission was obliged to give much of its attention to drink as a cause of degeneration. The vice appeared to be growing among the poorer classes, among the women as well as among the men. The children were sometimes born permanently disabled, and after birth were often neglected. There was evidence of a close connection between the craving for drink and bad housing and long hours of work in overheated and ill-ventilated rooms. The desire for a stimulant could not be resisted. Juvenile smoking was found to be another cause of physical debility; it was considered that scarcely two per cent. of stunted men had not been heavy smokers from boyhood. In answer to the question "What are the chances of a child brought up for the first seven years of its life in a central part of London, growing up strong and healthy, enjoying the buoyancy of childhood, and possessing eventually a sound vigorous constitution?" it was replied: "Very small, indeed, except the parents are of exceptionally strong constitution and intelligence." In Finbury, a congested London borough, the deathrate per 1,000 in one-room tenements was 38.9, in two-room 22.6, in three-room 11.7 and in four-room tenements 5.6. Mr. Hamm states: "One cause is left untouched, and that is the cause which

concerns America the most. That cause is the overworking of the laboring population of England from 1840 to 1890, when England had command of the markets of the world, and her mines and manufactories were worked to their utmost capacity, and women and young children were employed in unhealthful trades and under unhealthful conditions. The result was a sapping of the vitality of the working classes, from which they have not yet recovered."

Heart Complications in Diphtheria.—The treatment of diphtheria has been wonderfully revolutionized of recent years. Nevertheless, the period immediately following upon the acute stage continues to give the physician concern. It is then that the heart muscle, weakened by the effect of toxins, may give way with suddenly fatal results. Drs. F. W. White and H. H. Smith (*Boston Med. & Surg. Journal*) submit a study of nearly 1,000 cases. They consider: The great frequency of heart murmurs and of irregular pulse. The prognosis, however, does not depend on the mere presence of these signs, but upon the severity of the infection, the length of time without treatment, the rate and degree of irregular pulse and the presence of the graver signs of cardiac disturbance. Moderate disturbance of the heart is very common, though severe complications are infrequent. Frequent examinations of the heart are necessary to determine definitely its condition, because of the marked changes in rhythm from one hour to the next. Gallop rhythm, late vomiting, and epigastric pain and tenderness are important as danger signals of severe heart complications. The association of late vomiting with gallop rhythm renders the outlook almost hopeless. Antitoxin does not affect the heart unfavorably, but on the other hand, its early use prevents the appearance of grave heart complications. Frequent examinations of the heart and pulse in the second and third week of the illness are necessary, that being the time when severe heart complications most frequently occur. Bronchopneumonia is a more frequent fatal complication of diphtheria than heart disease. Sudden death from the latter is very rare when patients are kept in bed for a proper period. Prolonged rest in bed is necessary in all severe cases. It is not necessary to keep all patients in bed who have cardiac murmurs and a pulse which is somewhat irregular and increased in rate. One should be governed by the stage of the illness and the patient's general condition. If no serious heart trouble has developed within four weeks, the patients are usually safe from this complication. Heart murmurs and irregularity are of long duration in many cases, and make it necessary to watch the condition of the heart long after convalescence in all severe cases.

The temperature alone, considers Fischer (*Med. News*), is not a sure guide as to the outcome of a case of diphtheria. The heart is the guide; hence, a study of the pulse is more important in estimating the prognosis of this disease.

In Honor of Dr. Osler.—It is reported that plans are being laid for the erection of a library building as a tribute to Dr. Osler. The idea originated shortly after his acceptance of the Oxford professorship; and it is well conceived, in view of the work and genius of this great physician, in whose temperament a love of all that is best in literature is so conspicuous. He is himself a master-writer.

MISCELLANY

Pears are ripening in Washington, states the *Olympia Recorder*, at this season, when the East is harvesting its annual crop of icicles. And peaches bloom "in this favored section all the year round."

A serum for the cure of the rinderpest, which has swept away vast herds of African cattle, as well as thousands of horses and mules, is reported to have been discovered by Professor Koch. For this service he received \$150,000 from the Rhodesian government.

The "Fog Headache," which is one of the pleasures of winter residents in London, is no doubt, in some measure, due to the smoke of many thousand tons of coal contained in the atmosphere. Tea or coffee is used as a palliative; many use even stronger beverages.

Typhoid Fever in Ice Cream.—Twenty persons succumbed simultaneously to typhoid at Govan, in England. The infection was traced directly to the consumption of ice cream made by a man who had been a walking typhoid case for three weeks prior to the outbreak.

Instruct Soldiers in Medicine, advised Dr. G. Weiss, at a meeting of German physicians in Breslau. Inasmuch as in all wars, disease is much more death-dealing than bullets, this is a wise suggestion. Officers and men alike, should be thoroughly trained in all the branches of personal hygiene and preventive medicine.

The first Chinaman licensed to practice medicine in California, Dr. Chang A. Holt, of San Francisco, has just passed the Board of Examiners. He is a full-blooded Celestial, born in Canton 26 years ago, and studied medicine in San Francisco. Dr. Holt, it is said, will return to his native land. He is a Christian.

The hairpin of domestic life may in emergencies be put to a variety of medical uses—as an aesthesiometer, a probe, a wire for fractured bones, a cauterizer, a hairlip pin, a tenaculum, a nasal or aural spiculum, a wound retractor, an aneurism needle, a tracheal retractor, for drainage, as a female catheter, a wound approximator, etc. Sterilization by boiling would be essential.

Radiotherapy in pruritus ani has been tried with satisfactory results. The patient, having his fingers covered with lead foil, separates his buttocks, and a tube of medium hardness is concentrated upon the anal region. Seances begin with one minute and are increased up to four minutes. Half a dozen applications have been found curative in this ordinarily rebellious and very distressing affection.

Laryngeal Tuberculosis.—Skillern observes concerning this grave affection, that local treatment is always beneficial, even if it only relieves pain. The prognosis depends more upon the general systemic condition of the patient than upon the lesion in the throat, and the prognosis is good, provided the concomitant lung lesion is responding to treatment. The best results are obtained when the laryngeal deposit is localized.

A Doctors' Race was an amusing feature of the closing day of North Georgia Fair last October. The twelve physicians who took part in the contest had their horses stabled nearby and were themselves undressed and in bed. At the stroke of the gong they had to dress, hitch the horses to their vehicles, and drive one mile to a supposed patient. The race was won by Dr. Rudesell. Dr. Elder was second and Dr. Hunter third.

Filthy Lucre.—Attention has been called to the filthy condition of the bank notes and greenbanks kept in circulation in the country towns. Some one has computed such bills to harbor millions of bacteria. There is here, then, a source of contagion which should not be disregarded. The federal government is always ready to exchange clean, crisp notes for old and dirty ones.

The rectal temperature has decided advantages over that of the mouth, writes Ostenfeld to the *Zift. f. Tuberkulose*, V. 5, for determination of the temperature in tuberculosis. By careful comparison of the temperature findings in the mouth and in the rectum it is possible to determine the difference for each individual. This once ascertained, the temperature can then be taken in the mouth thereafter, making allowance for the difference.

Weary Willie Set to Work.—A striking illustration of the success of the work test on ridding country towns of tramps is furnished by the town of Sherborn, Mass. Sherborn, in 1895, had 1,446 inhabitants, and during the following year it lodged and fed at the town almshouse 1,844 tramps. In March, 1897, the overseers of the poor decided to employ tramps in labor for the almshouse and in chopping wood, with the result, that in four years there was a reduction from 1,844 to 31.

A Punishment Fitting the Crime.—An ordinance has been passed in a Western town, setting forth the sums which spitters must pay for dirtying the pavements. Fines up to \$25 are imposed. In New York City, the ordinance concerning this practise is much too often a dead letter. Oftentimes spitters are but reprimanded, or they are fined one dollar, if poorly dressed; or two dollars, if they appear to be able to pay that much; or three dollars, if they lie regarding this offence against public-decency.

Tuberculosis is the Most Serious of asylum diseases, considers Greenwood (*N. Y. Med. News*), because of the lowered vitality incident to asylum life, and the impossibility of preventing expectoration. In the South-western Insane Asylum, the deathrate in the 1,000 is more than from all other diseases on the outside, and three times as great as from tuberculosis alone in the United States between the ages of 20 and 55. There should be special hospitals for the tuberculous insane, and laws should be enacted requiring all patients seeking admission to asylums, to be examined, and to be refused admission if they are tuberculous.

Overlying of infants is a condition of things with which coroners' physicians have constantly to deal. The general practitioner, unless he practices among the very poor, is likely to have but little idea of the great mortality among infants from this cause. The *Medical Press and Circular* (Oct. 19, 1904) declares that the number of children killed in London by suffocation in bed during the past ten years is equal to that from typhoid fever, being little under two thousand each year. Generally these deaths are the result of pure accident; sometimes drunkenness is the cause; it would be difficult to conceive infanticide intentionally brought about in this manner. The majority of these deaths occur on Saturday nights, when there is most indulgence in drink. If they are not drunk, the wives of workmen nevertheless sleep most soundly on this night.—for Saturday is the busiest in the week for them. The remedy is: separate cots for infants and no suckling in bed.

NARCOSOMANIA, WITH REPORT OF TWENTY-ONE CASES.

BY THOMAS HORACE EVANS, M.D., PHILADELPHIA, PA.

PART III.

MORPHIN.

MORPHINOMANIACS are often pleased to find companions in vice. Certain sexual perversions may be associated with its use. But usually its victims are those who even in company, find solitude, and dream the delicious dream until reaction may shatter their delight.

Unlike alcohol, no proper restricted use of this narcotic is conventional. The secrecy of the patient, therefore, confuses most examples of the disease so that its usual clinical picture is distorted.

Even degraded people usually dislike to be thought victims of a drug-habit.

Alcohol is assimilated through the gastrointestinal track. But with morphin a thousand variations in its use present themselves.

In these different modes of attack the subtle danger is increased because of local associations and consequent psychic morbid currents connected therewith.

Morphin gives a certain calm due to physical relief. The mental stimulation is due to a state of passive enjoyment of visions of a purely presentative value and of which the personality of the victim exerts little or no guidance. Unlike alcohol or cocain, whose victims make some positive effort toward an intellectual or at least emotional objective, morphin unveils enjoyments which lull the patient in meaningless and seductive transport. The mental effects are reinforced by absence of painful or irritative reflexes from the body. It is the resort of neurasthenics of physical or secondary causation; or, by accident or design; or for the relief of malignant disease.

The untruthfulness of patients is due not only to poor memory resulting from the use of the narcotic, but with them very often a lie is to be taken as the lie of fear.

Evolution, I have long contended, will explain not only the modifiers of species, but alterations in biologic processes generally in health or disease. Adaptability has a wider significance than the gross changes of genera and species. Certain psychic influences conform to this rule. Fear of confinement in an institution, or imprisonment, the loss of the narcotic, the physical agonies of its deprivations, or those irritative influences which may have led to its use, all combine to suggest the protective value of untruthfulness.

In treating patients, not only by case, but in general, the physician and the community must be educated never to punish, never to threaten.

Suspicion of others unjustly, or the loss of their respect, is a great factor in the mind of the patient—a poor memory or actual insanity may complicate.

Even insane patients may possess wounded feelings. We ought to consider no attempt, implied or open, on their self-respect and sense of individuality.

I believe that many cases of insanity are made worse by the attitude of attendants, who treat them as lower animals in the presence of which indifferent conversation may take place and utter disregard of feelings and appreciations be of no moment.

Herding together in institutions is pernicious. If, as in the army or at school, personal initiative could at least be a relative factor, the effects were not so bad.

But to bathe, feed and clothe nervous and often sensitive patients with no effort to allow them choice, is to put them in a position of servitude, without the redeeming hope of possible future freedom, or right to escape. Instead of institutions, we should have beautiful reservations—for the sick are worthy of as much liberty as we allow Indians and other savages, and would be more thankful, I am sure. Even with our present limited possibilities we should arrange to shift patients from one asylum to another—to high and low altitudes as they might prefer—many cases would do well under such a regime. In return for depriving them of liberty, we owe them any possible relief for an intolerable condition.

I believe relapses are due, in nervous or melancholic cases, to the memory of tribulations of this sort, actual horror of helplessness in the confinement.

Morphin users are very intractable; but with a recognition of the nature of the disease and the particular predisposing element in each case, much can be done. It is fatal to hope to threaten or deceive them.

Case VIII.—Mrs. G. B., aged 51 years; wife of a manufacturing chemist. For 20 years has used opium. The case is not one of perversity, for the craving is distinctly that of a neurotic nature. For years she had suffered nervous attacks which rendered it impossible for her to enjoy life. The symptoms of neurasthenia in its ascending type are plain in the history. Finally, the accessibility of opium led her to its use.

Although at times going to shocking excess, a moderate but steady administration has ruined her body but secured measurable peace of mind. The anguish of the family at her habit is equalled only by their stupidity in not tracing the reason of it.

In this, as in other cases, I draw the line between a perverse use of narcotics and that use which is essentially a hated but restful resort under nerve stimulus and reflex irritative conditions which are the reverse of normal, and in which the patient, deprived of the narcotic, would pass a hopeless purgatory.

Case IX.—B. J., aged 23 years; prostitute. Like many others in a like situation the peculiar and faulty mode of life leads to other excesses. But in this case the neurotic temperament makes for the essentially morphinomaniac phase in which not sodden stupor, but mental avidity is the result of pause in the nerve conflict and emotion. The girl is of brunette type, of rich complexion. Skeleton feminine in type, brachycephalic, firm mandible, general osseous development heavy. One eye has a pronounced esophoria, the result undoubtedly of an atrocious astigmatism and anisometropia. This has never been corrected. Many reflex symptoms are noticeable. With her earnings the girl is the sole support of a crippled mother. She does not seem willing to adopt any more honorable mode of life—she has become accustomed to a profusion of money, and insists that she cannot support herself and her mother by any proper sort of occupation—her education is faulty, although she is rather widely read, as is often the case with those in this social state. In conversation with her, one day, she remarked that if the theory of the transmigration of souls is true she hoped that she might never return as an animal, who might be "compelled to serve." She would rather be a flower or some inorganic material. I think that one lesson is being pressed home to her; possibly the doctrine of Karma is not altogether untrue.

When nervous strain becomes unbearable she returns to the use of morphin. Then, the phantom of herself, she goes through with what is to be done, altered in temperament and as if apart from the unhappiness and misfortunes of her existence.

What can we say when we remember what life means to such as these?

While alcohol is disorganizational, morphin is a temperamental modifier. On the other hand, cocain stirs initiative while arresting metabolism—rather venture-some.

There is no use in going over the many different ways

in which morphin may be misused. There is the individual who buys his laudanum at the drugstore. Here, also, the woman dipsomaniac buys her "cologne."

There are the dens of vice in which both sexes lie around in stupor.

There is the solitary one, with his hypodermic—the business man, the physician, the lawyer, perhaps.

While alcohol brutalizes and so destroys the morals, morphin lulls into immorality, and cocain excites, first to additional work in favored occupations, later under strain to crush the higher self. The use of alcohol may be combined with that of either cocain or morphin. But cocain and morphin together are antagonistic, and rarely used by the individual in the same period.

The dipsomaniac is known as such with difficulty between paroxysms. The morphinomaniac, by its constant use doses himself into a listless, torpid manner which alternates with a hectic exhilaration.

It must be remembered that we are dealing with cases not perverse at the root, but neurotic. These individuals do not react to morphin as ordinary people would.

Instead of using the narcotic, primarily, to secure temperamental delight, these people in their neurasthenia must have help from somewhere. With its use, at once a calm comes over the mind, so that in moderate doses intellection is really stimulated. It is only when the secondary effects force themselves forward that the character of the patient begins its ruinous descent.

COCAIN.

The narcosis mania for cocain is called cocainomania.

Among tramps, prostitutes, burglars, gamblers, professional people, and many in all walks of life, the use of cocain is extending. I have read that in the neighborhood of Richmond, Va., many tramps have been caught trying to corrupt school children to its use.

Again, I want to omit cases of simple perversity, and refer only to the relief of cocain narcosis sought by an outraged and tortured nervous system.

Of all the narcotics the use of cocain is the most exciting, insidious and dangerous. More and more do we discover how wide its use has become. I venture to say that the majority of its victims are never recognized, because in its use they exercise an infinite caution, and not until insanity, death, or some fearful outbreak appears are its tragic effects manifested.

The effects of cocain are not well known.

Upon normal individuals small quantities do not produce remarkable general effects. Danger is always to be anticipated, however, and we are warned about "idiosyncrasies." In plain words, however, any talk of idiosyncrasies is a confession of ignorance, unless we are prepared to state in what physiochemic or physiologic possibilities they exist. It is to be kept in mind that protoplasm is active, or existent, as four faculties, which constitute a unity. To those who believe in a definition of the world as consciousness, these four faculties, namely, *contractility*, *irritability*, *metabolism*, and *reproduction* are aspects of that essential consciousness.

With the unity of consciousness "never intelligibly assailed" (H. B. Alexander, Ph. D.), we may assume that these physiologic aspects are objective evidence of four primary conscious relations, namely, *effectuality*, *affectuality*, *perfectuality* and *reflectuality*.

"Nothing comes out of nothing;" "action and reaction are opposite and equal;" "the persistence of force;" and "the principle of sufficient cause;" these are axioms,

essential and correlative. *Affectuality* is the same as addition, therefore. *Consciousness* as affected is a cumulative transference of essential relation; *effectuality* is the response. *Perfectuality* is the harmonization of these essential processes. *Reflectuality* the insistence of relation.

Pythagoras was right in his idea of number being at the base of the existence of our essential conscious processes; for these certainly have a real quantitative value. Unity is the expression of any reality or being. Duality is difference, distinction, and with the Kantian categories of quantity, we can see it is the expression of cause and effect. Triple relations are those of existence: the *subjective*, the *objective* in the *self* as unity of being. While the quadruple relation is the physiologic or organic; which manifests. In the constitution of the individual the results of evolution, by heredity and environment, are established to certain qualitative distinctions.

The balance of the four physiologic faculties is as infinite in variation as life itself. Yet with all the organization these four faculties are the complete physiologic ground of being. Every food, poison, or therapeutic agent consequently exerts its influence by joining the organic body or in modifying its environment. In doing which the state of physiologic balance is modified with regard to one or more of the original protoplasmic faculties, simple or compound, as the individual in organism may be.

Idiosyncrasy, then, is a distinctive reaction of one or more of the protoplasmic faculties, or of the mechanism of these faculties, to the food, poison or therapeutic agent.

The faculties are to be taken as the evidence of essential physiologic consciousness. Self or reflective consciousness is not to be confused with this state of essential consciousness, the latter of which being peripheral and the former coordinative. For reflection, or self-consciousness, is the function of organic tissue in its higher reproductive (sexual or associative) aspect. Even as the organism is able to nourish itself, or to propagate new organism, so the body as a mode of consciousness is able, also, to co-ordinate its essential consciousness, and to generate self-consciousness or identity, in series. The mechanism of self-consciousness is peculiarly a reduplicative one. With the protoplasmic cells there is ability to propagate by fission, and develop new individuals, or to propagate by karyorexis and form tissue; the nervous system in its perfectual aspect correlates the organism, and in its reflectual aspect forms circuits of neurons and centers, associating them in functioning entities for the time being, the essential consciousness all of which becomes a unit. With the bilateral mechanism present, a reduplication is also formed of necessity, and the juncture of these two identities produces the vehicle of reflective ideation or self-conscious thought.

Organic initiative is a further development in which contractility is paramount. In the self-conscious identity this forms the ground of Will. Attention is a matter of lines of lesser resistance.

If the nervous system is unstable in associative or coordinative power, conflicting psychic circuits and imperfect junctures of neural identities make for a decentralization of the ideal processes. Any endangerment of the health of nervous system will make for an increase of these associative difficulties. It can be under-

stood that many cells do not succeed in forming additional organic entities, although cell-division takes place to sustain metabolic processes. Also the nerve unities and reduplications abound in numbers of imperfect junctures. Essential consciousness is being; self-consciousness is a matter of organic reproduction in which that being is associated representatively by the vehicle of nervous tissue, and further reduplicated into parallel identities which are to be coordinated for the time as idea. Higher compounds of idea mean the thought-succession.

Into this enter all the original idiosyncrasies of the organic units, since they are the physiochemic basis of the existence of the organism.

Reproduction of the organism in its somatic aspect is, on the contrary, not productive of self-consciousness in tissue but of separate identities of essential consciousness. It is probable that every cell or descendant of the original cell, could be modified to reproduce the compound species. Yet into this enters the factor of evolution—adaptability, and change due to environment. From the time of first karyokinesis, I believe there are always present cells specialized to segregate; these require a certain stage of nutrition to reach the period of efficiency, as established by a physiologic rhythm, before which they divide sterile, and after which they divide fecund. It is the essential consciousness of these somatic sexual cells which are concerned in the correlation of general sex influences on the body and mind. The aspect of reproduction, therefore, is triple: in the renewal of cell and tissue it is physiochemic; in duplication of organic life it is somatic; in the reduplication of conscious or essential states of being it is one of idea, or psychic. In other words reproduction is the aspect of essential conscious reflectivity. Metabolism is the perfectual process. In this, essential consciousness or being is reduced to terms of adaptability.

Certain elements, such as carbon, sulphur, nitrogen, etc., must be altered to organic relations before our bodies will assimilate with them. I say "with them," advisedly, because as in gravitation there is a double attraction, so, in this, we may speak of the body assimilating new elements, and of the new element assimilating the body; but in a definite proportion and according to what I would call the "weight of its essential experience." There is a physiochemic distance to overcome before the essential experience of the inorganic carbon, etc., and the essential experience of the assimilating organic tissue may be reduced to an identity of relation. The process of reasoning and application of judgment—understanding—is a metabolic, intellectual attribute of the perfectual individuality. On the other hand, and while this is akin to multiplication, all difference is the result of primary addition or subtraction as represented in the cycle of effect and affect—irritability and contractility.

Somatic initiative as derived from the latter is effectual as muscle or in the contractility, i.e., response of other cells. Some irritability is specialized in epithelial tissue, and, in a lower state, existent in all tissue as the sensory relation; for every cell in all its faculties retains the power of primitive cell-to-cell communication. A study of histogenesis and embryology will illustrate this beautifully—showing the nerve and epithelial tissue as derived from epiblast, and the muscle and connective tissue from mesoblast. Consequent organization carries out these principles always in accord with the

process of adaptability. With this alone in mind, we understand that the action of cocain, or of any other physiochemic agent which can modify the organism, should be reconciled in our understanding of it with changes in physiologic processes. Therefore, when I say that cocain increases *initiative* it will be taken to mean that cocain either directly enters the cell structure to facilitate that contractile or responsive ability, which, in nerve, muscle, epithelium, or connective tissues, but in each according to histologic idiosyncrasy, lies at the root of that power; or, that it creates other environment or is itself an environment facilitating the initiative process. By reducing the activity of one or more of the other physiologic faculties another mode of initiative increase may occur.

Law.—Every influence that changes physiologic being, does so by direct influence on one or more of its four primary faculties. One or more of these may be increased. This may mean a relative decrease of the others. Contractility and reproduction constitute the dispersive cycle. Irritability and metabolism constitute the connective cycle. Direct influence will concern either one or other of these cycles, but by opposite action within the cycle, there may result an apparent influence on the faculties of the other cycle. Action of these agents may be mediative or through environment, and immediate or by assimilation. These changes are to be looked on as a part, the protoplasmic part, of general evolution. Selection, therefore, proceeds by four factors derived from these original faculties, and which in the individual or higher organism are represented by changes due to the adaptability of: initiative, temperament, trophism and sexuality.

A subcutaneous injection of morphin causes only a mechanical anesthesia. Applied directly to living nerve, I find (in myself) it does not directly diminish sensation. In the case of cocain, the hydrochlorate will numb peripheral nerve endings.

And yet, the systemic effects of cocain are stimulant. The effect on muscle is to cause contraction; in lethal dose I believe the intoxication of muscle is the result of the presence of waste products, or exhaustion, due to excessive contractile spasm.

The mind remains clear in cocain acute poisoning.

But in reduced and continued dosage, after time the mind is damaged to the limits of insanity. The explanation of these conflicting facts is, probably, that cocain's apparent reversal of effect is due to overeffect, and incompetence of metabolism. With the understanding of metabolic intellectual conditions, the bearing of this is consequent in what is to be recorded concerning cocainomanic affections.

An unstable nerve organization means instability of the vehicle of thought and self-consciousness. From changes in this process, due to cocain, we may infer the underlying physiochemic and somatic modifications. In every instance it is the principle of evolution working to re-establish and maintain adaptability to environment that makes for these changes. The environment, in the case of the body, is at once an intellectual or higher one, and a lower or physical. While in the case of the mind it is both physiologic and physical.

From this it will be seen that the neurotic individual—out of harmony with his environment, as a paragonerate—may, by the influence of cocain, re-establish that harmony in the event that cocain is able to restore the one or more underlying physiologic abnormal processes.

But the effects of cocain are factitious and unstable in themselves, as shown by the necessity of ascending dosage, so that no permanent accord can be hoped for except in rare instances.

The case of *de Quincy* and *morphin* is of the rarest.

Yet I believe that to-day there are cocaineomaniacs really succeeding in their use of the drug, and not reaching the disorganizational stage; the practice is venturesome in the extreme, however. Some cases are the result of curiosity or accident. In this way many physicians have fallen victims to the habit. The drug appeals peculiarly to all people of intellect. Its distinguishing feature, in small dose, or in the beginning, is to increase mental vigor along lines of interest to the individual. I mean that that sort of intellectual work which he does becomes easier to him. Morphine gives fantastic visions and smooth sensation for the victim. Cocaine increases and enlarges the power of mental association.

Every word, every letter, is instinct with suggestive possibilities; a book could be written to detail the impression of a word, or of any distinctive characters; so complex and wonderfully vitalized do they appear.

The neuropath, long suffering from imperfect associations of mind currents, recovers in a flash clear mental vision, as if his astigmatic sight had been suddenly refracted—all is distinct, vivid, definite and intense. And yet, in the hypertonic association of ideas and sensations, many ordinary apperceptions are lost. This causes a narcosis to previous thought, perhaps unpleasant thought, for in the wealth of association itself elements of pleasure appear.

A sort of double personality is liable to be evolved, comparable to the reduplication of cardiac sound under excessive stimulus. There is not metabolic strength enough to effect a cohesion of identity that should complete the psychic circuits in self-consciousness, although the psychosensory apparatus is fairly intact. It is probable that variations in the time of bilateral coordinative juncture may be the reason of sensations of double personality and other associative difficulties. Excessive actuality, alone, is a sufficient reason; for extreme of any mode of motion becomes fatal to the persistence of organic life—adaptability is a process and condition brought about only after long relation modifies essential inertia.

This excessive actuality of mind is to be met in patients of intellect, but in whom some essential difficulty has caused a disturbance of intellection.

Astigmatism, or any other reflex irritation not of a directly painful nature, is likely to be present. Patients who have malignant disease or one of a painful nature, take to morphine; consumptives to alcohol, because of the disorganization in tissue, as well as patients suffering from diseases of a neurotic type; while people of disorganizations of psychic circuits are to be looked for as liable to become cocaineomaniacs.

We shall always see in this sort of case some psychic snag that disturbs the current of idea. Cocaine is the resort of prostitutes, neurasthenics, epileptoids, temperamental iconoclasts, and plus neurotics in general; when the use of the drug is to be considered a manifestation not of a perversity, but a neurosis.

Case X.—H. D., age 29 years; prostitute. Of excellent family and of the best education. At one time used morphine and alcohol; now uses alcohol and cocaine. Does not use it hypodermically for fear of disfigurement. This curious esthetic regard for physical perfection and disregard for moral beauty is usually to be noted in neuropaths.

She is about 5 feet, 8 inches in height, of tall, effective, presence; skeleton of clear-cut feminine type; is not disposed to fat; of clear complexion, although an artificial blonde; brachycephalic.

Talks entertainingly, in an intelligent manner, even under the influence of the drug. Speaks in clear, incisive tones, but

with a voice that is never of extreme high register or over-resonant—at times having a slightly explosive enunciation.

For weeks along will keep herself under the effects of cocaine and alcohol (champagne). She tells me that passing under the influence of the narcotic is disagreeable, consequently, she would prefer to be able to continue its use by small but regular doses. When she has left off and starts again, among the first effects of a fairly heavy dose there is a tendency to grit the teeth. I may say, that this symptom is present in all cases when an excessive dose has been taken. At once there occurs a mental clarification. She feels the absence of worry and regret, and is better able to bear with the miserable sort of existence into which she has cast her moral lot.

There are strong symptoms of sexual perversion—possibly an acquired inversion. My belief in this is strengthened by the fact that I came across her in one of the most notorious resorts which formerly existed on North 10th Street, in Philadelphia.

Case XI.—R. B. A., aged 25 years, prostitute. This case is an illustration of the pernicious white slave influence. There is some protected and brazen power which constantly secures material and transfers it, north and south. On the coastwise steamers and by train, every change of season, girls and women, under charge, are being shipped northward and southward.

The home of Miss A. was in Baltimore, from which she was sent to a house on South Oglethorpe Ave., Savannah, Ga. By means of this transference, all trace of the unfortunates is lost to their friends.

As a girl she was of intellectual but neurasthenic disposition. Since she went astray in Baltimore she has kept herself almost continually under the influence of alcohol; bad whiskey and indifferent beer have been her constant drink since she was 18 years old.

My attention was drawn to a number of puncture marks scattered over her breasts, and I was informed that she took "dope." Asked what kind, she replied, "Lightning dope." This I believe, is a term for cocaine, common with some of its users.

The effects of cocaine are terrific in massive dose, and it is so its habitués learn to employ it. Her face was drawn into a tense expression, the pupils having a staring look. The eyeball is fixed by muscular contraction. While with morphine users there is often a tendency to perspiration, cocaine habitués, as a rule, do not perspire, unless the drug has been pushed to nutritive exhaustion, or has been given up. She tells me that her mind does not seem active to her, but that everything around her fails to make a definite impression and that she can direct her thoughts to such emotional states as she may desire. She has the opinion, herself, that she is not entirely sane. But she tells me that when she stops the use of the drug she is unable to stand the pressure which develops in her mind.

Case XII.—Y. Z., student; aged 24 years. Tells me that he experimented on himself at several times. He found no difficulty in running up the dose. I find that he has long been neurasthenic. He is a musician and linguist. Of emotional and passionate temperament, intellectual and appreciative. For several years had been leading an irregular life, using stimulants such as alcohol, morphine and cocaine. At one time smoked cigarettes to the extent of 50 or 60 a day. He is 5 feet, 7½ inches in height; of nervous appearance and slender osseous development; nearly brachycephalic, with uncertain mandible.

At first with slight doses repeated at short intervals, he would experience a state of repose and mental activity. If the doses were increased, with the mental activity would be developed physical muscular excitement. He tells me that so rapid was his thought, it would seem that the clock is ticking slower. He could write with extreme rapidity, although characters were ill-formed, some letters unconsciously omitted, and many words unfinished. Ideation, however, appeared to be complete, for the succession was always intelligible. There was a tendency to attempt to run in associated ideas the effect of which was to give the impression of parallel trains of thought and branch issues. The play of idea around the central thought, he tells me, was always unique and fascinated him. So that he would put himself under the influence of the narcotic for the simple delight of following his mental pyrotechnics.

As with all cocaineomaniacs, he found the use of the drug becoming excessive. For a while he would leave off. Then, when opportunity would arrive for laziness, his desire to experience the influence of the narcotic again would arouse itself. Several times he returned to its use. He lost weight. And yet to his friends no striking deterioration of health was noted, and indeed, his mental vigor and intellectual acuity was

commented on as increased.

A fortunate illness intervened. Since that time, in 1902, he assures me he has never retaken the narcotic. I consider, however, that there is always the danger of worry, loss of work, or lowered nutrition bringing on a state of mind favorable to a relapse.

Case XIII.—W. S., aged 27 years; married recently; no children. Was a soldier in "the islands" (Philippines) as they are called by the army and navy boys.

When he first entered my consulting room his face and hands were cold and dripping with perspiration due to vasomotor relaxation. His eyes were almost pathognomonic of a cocaine-maniac in the stage immediately following a debauch. At this time a peculiar nervous jerky walk can be noticed, and an intense increase of reflex activity in general. The hyperesthesia of nerve centres may be associated with some anesthetic conditions of the skin and mucous membranes. He talked rapidly, and with a convulsive action of the thoracic muscles. While during the stadium I have found the voice relax toward the end, before the use of cocaine in the stage of increased pressure the voice is high, resonant and assertive. After the narcotic is left off a certain amount of resonance returns which I think may be due to the action of the thoracic and diaphragmatic muscles as well as those in the higher respiratory tract.

He tells me that as his use of the drug increased, he could notice a disagreeable feeling of oppression in the chest. His use of the drug was acquired soon after discharge from the army, when with his back pay he fell among evil associates such as are always waiting for the soldier and sailor off duty. The strict regime, as in the case of athletes at college, often results in reaction of this sort.

This patient has had two relapses, notwithstanding some treatment which he received in an institution. My effort in writing this monograph is to call attention to certain underlying influences and conditions of mind, and certain etiologic principles, which I believe may be useful in modifying the treatment at these institutions, the sentiment of the community toward drug-victims, and assist us in securing better opportunities for such as may need treatment.

Case XIV.—W. N., aged 21 years; formerly in the army, having entered under age and served 4 years. Tells me that on two occasions people have persuaded him to allow them to give him an injection of cocaine. He is of large physique, perfect health, with the exception of an element of sexual neurasthenia, I think the result of excess.

The first dose evidently was heavy. He tells me a flash of intense charm passed over him, which was at once succeeded by a feeling of pressure in the head, rapid thought, rapid pulse and excitement. His jaw worked convulsively so that he could hear his teeth grit. He does not remember anything for a time and when he came to, everything around him stood out in extraordinary distinctness of form and color, and he noticed all sorts of sounds which he could determine were variations of usual auditory impressions. A feeling of lassitude pervaded his body. When he rose to his feet and tried to speak he felt dizzy and his voice sounded peculiar. He slept, at first wakefully and later in profound relaxation for a whole day, after which feeling yet nervous he was able to go to work.

With all the discomfort, he tells me there was an immense pleasure. Recollections came to mind of people and places in his acquaintance. His sexual nature was strongly aroused. This latter experience led him to a repetition of the narcotic effect. An abscess developing from the injection, he came to me for treatment. I noticed his vasomotor condition and general neurasthenia. I disregarded his explanation of the abscess and managed to get him to admit the reason of it, whereupon I warned him so strongly of the dangers into whose grasp he was putting himself that he gave me his word never again to venture to use the narcotic. He admitted various habitual excesses in alcohol, gambling, etc. His superior intelligence and artistic temperament for all his deficient opportunities in life convinced me that he was a case in which the neurotic danger signals were broadly displayed.

Case XV.—X. X., Physician; aged 47 years. In summer of 1904 the case first appeared in the newspapers, in which a description of his death occurred.

For a couple of days preceding death he had remained in his apartments. Toward the end a terrific disturbance, as of smashing furniture and other frenzied outbreaks, finally drew attention to him. He never regained consciousness.

On his table were found scattered notes with dates and hours indicating the time certain notes had been recorded. These were an attempt to detail his impressions under the effect of the narcotic. However, the handwriting was for the most part

unintelligible. The notes were concerned with states of vasomotor reaction, sexual and psychic symptoms being also prominent.

My belief is that the man became addicted to the use of the drug, and not being able to fight it off, made these scattered notes. Knowing that in all probability he would die or go insane, he wished to leave them as a sort of excuse for his indulgence. But I do not believe that he undertook to experiment with himself primarily from the standpoint of science.

In summing up the conditions arising from the use of cocaine in those of neuropathic constitution I will collate briefly, the more detailed experiences which I have accumulated through contact with many victims of the drug.

They tell me that in the beginning of its use they always feel an increased desire to do good work, along lines of their usual employment. But literary, other artistic work, or business soon fails in the race of mad intellectual subjective intensification.

The hours are counted lost spent away from the delight of the narcotic.

Its victim hurries to the retreat where he may enjoy it. With the first access, his heart swells and he resigns himself to bliss and content. Immediately the surroundings take on their well-remembered peculiarities. He notices the usual emphasis of the clock, the lights, the wall paper. Again returns the wealth of color, sound, and ideation. No longer anxieties press him; for he is in a world of his own. Cocaine allows such liberty of thought, such range of initiative that he may be at will a world-famous artist—on a vacation—but in possession of glorious abilities and in recollection of triumphal achievements. He plans new attacks on literature, art, or great business operations. So real do these intended achievements appear that even now the plaudits of admirers are enjoyed. He can appreciate all the fruits of victory in that narcotic anticipation. Thought controls itself in a subordinate or reflex manner to enter the self-consciousness. Pleasure may take a sexual turn. And, again, it may be in the form of sense of merely physical rest and plenitude.

After a period of narcotization, when heavier doses become needful to cause the wished-for effects, the dose comes to produce a body rigor that is not so agreeable. Until the patient learns to accept that, he dislikes each preliminary stage; I think that this is a reason for increase of dose—in order to hurry on the fuller effects. But this, too, he may learn to enjoy—the body rigor and sense of oppression, I mean—so that a fierce delight comes with the massive, racking shock that seizes him in its grip for the moment. Then that passes and he reclines in sensuous appreciation. Suddenly he is aware of a rapid intensity of heart pulse, which makes him uneasy.

His face is drawn. His muscles are rigorous. The pupils are contracted. His head feels curiously light. And yet he can feel the weight of every hair as it hangs upon the cuticle.

There may be a slight chill. Or, perhaps, a general coolness passes over the body surface. His feet are icy to the touch. If much cocaine has been injected into a limb, sensation, but not motion, is lost. Later, motion becomes weakened, due, I judge, to defective metabolism of waste products. For the muscle appears to suffer actual fatigue without initiation of movement. Thirst develops—water—water. Then great waves of light—even in the darkened room—wash over the retina. And soft, swelling harmonies in dim remembrance of by-gone times float into his ear. No more he feels the

couch on which he may be lying, or sitting, lost to the world about him. Objects in the room scarcely excite retinal appreciation. But if he fixes his attention, they approach from distance at will. There is a curious relaxation of the bounds of time, space and sequence. He can think many things between the ticks of the clock, so slow do they count, and so rapid is ideation. Space is a mutacious value. A table may be a foot or a yard away. He must reach out to ascertain. No; that were too much to do, let it be where it may be.

He rises, perhaps. To walk is to glide. Not to those who watch him. His steps are incoordinate, heavy and uneven—although he does not know it. He walks with his weight on the heel, and when his foot strikes against an obstacle the whole body reacts spasmodically. There is an hour between the passing of each foot before the other. Yet, he appears, to those looking on, as though lurching toward objects, in his drunken stupor; while to himself all the imagination of a lifetime crowds the way.

Elimination of the poison may occur through any of the body excretions.

I have known a case of hemorrhoids which was suddenly relieved after a cocaine debauch.

The urine is a means of elimination of the drug.

An effective means of counteracting the poison is to have the patient drink quantities of water, and to catheterize the bladder frequently. The passage of urine may be difficult on account of vesicle anesthesia. While the local anesthesia may affect the testicles and the genitals internally, as well, there continues a centric excitement, which may for a time be referred to the peripheral tissue. But the patient is lost in dreams.

He sleeps. What weird harmonies of dissonant seconds spin up and down in finest intervals, strange augmentations, and diminished sevenths crash out and sink as surf in the ocean tide.

It is the ocean; long ground swells bear him away.

When the morning wakes him, remembrance is faint. But with the narcotic again, much returns to mind. The peculiar power of abnormal association brings him again to where he has been before; the water and the music are the old delicious ecstasies; he is borne away upon the flash and crash of ineffable beauties.

We can observe him, however, eyes open, unseeing, fixed on an imaginary vanishing point. It is common for infants to lie steadily watching a bright light, which seems to attract them, or a sound. So, under the influence of a narcotic which reduces the power of self-conscious attention, the individual will have his sight or hearing irresistibly drawn to objects of brilliant light or intense sound. His teeth grit roughly with each excessive dose of the poison. His hands clench. He moves restlessly under the stimulation. A transient flash or pallor shadows the face. He sits up, only to lie down again. The body, like an automaton, whirs; although he scarcely realizes the intensity of effect, so taken up with the process of imagination is his mind.

Yet spoken to, he arouses himself enough to answer intelligibly, but with a certain marked preoccupation of manner. He cannot give lucid explanations, for he interjects so much that appears irrelevant; and on further questioning he elaborates with absolute indirection, as of a person seeing and hearing that which is hidden to others. If he writes at this time, there is a tendency to miss the point in an effort to bring in all possible associated ideas.

Incoordination manifests. Alcohol or other narcotics cause an "s-h"-ing of the sibilant. This is the result of recession of the mandible, or its advancement. A lateral incoordination causes a peculiarly ominous sharp tone to the "s" that is entirely a new sound. Some people in the absence of canines or bicuspid have a normal tendency to this sibilant variation.

The walk of cocaine habitués is characterized by short, jerky steps. They strike the ground sooner than would be expected, so vivid does everything show up; or they fail to see clearly in the preoccupation, or exhaustion, as the neurotic influences subside. Motor weakness becomes a factor also in later stages. Wasting of flesh is common. Retinal neurasthenia, and general irritability may develop. The temper of the patient flares up on the slightest excuse. He is unable to stand the strain of his usual occupation. He neglects this with the idea of regaining strength; but with recurrence to the narcotic, that never comes. Sexual inversion very often occurs. Sexual neurasthenia is at the root of this in many cases. But the peculiar disorganization of ideas, and the power of almost limitless initiative together with the simple delight of establishing so at will any emotional values, sooner or later tempts the victim to many sorts of excess. Memory is lost from the very excessive nature of additions to experience. There seems to be a delight in assuming emotion that is similar to hysterical expressions. A sorrow, or anxiety, or joy, takes hold of the patient and in the disorder of metabolism, may become a fixed idea—with which he associates the delights and emotions of the narcotic, and which tend to coalesce in these moments of intoxication. The mind currents seek old channels as lines of less resistance, and the initiative and associative increase of power in the mind, due to cocaine, is thereto directly responsible. So excessive is ideation that secondary personalities form in the victim's imagination.

He is a musician, to whom the music he listens to is owing. He is a writer, and has written the book he is reading. He is the subject of the plot. And he is the one reading it. This comes about through peculiar coalescent associations. Just as personality grows up in the mind with the daily experience it assimilates, so it is that under excitation certain whirls form around emotions and events connected with them, in connection with imperfect final coordination into higher unities, to create the sense of different and plural life. This is the moral basis for general forgetfulness of *meum* and *tuum*. Stealing may occur under acutal misapprehension. The patient loses all trace of sense of property—and realizes only desire and emotion as justifiable. He forgets to keep promises—confusing the making with the keeping of it, so immediate is reaction. He is not able to preserve normal relations in the subjective and objective worlds.

INSANITY.—Confusional insane states grow easily out of the preceding. These may be compounded of fixed ideas which associate themselves with emotions, worriments, the division of personality and anticipations.

Certain sex changes are noticeable. Differences in gait, voice and emotion consequent thereto are built up upon not only psychic processes but even physical modifications. These may be seen in transformation of the face, and contour of the neck. The feminine type of neck and jaw is more rounded and slender, while the male type is like a truncated cone—comparison of

the cow and bull will illustrate this more exactly. The ordinary type of respiration in woman is usually thoracic, which may be due to a desire to save the abdominal muscles, or to tight lacing. I scarcely dare to lay a profane hand on these mysteries. In the male type abdominal breathing, *i.e.*, diaphragmatic, is the rule. With breaking down of the sex characteristics, in the first period, which is that of tension, the voice becomes more resonant, and later weakens. As the mind loses its grip there is less chance of initiative working to re-establish proper sexual reflexes.

We note insidious alterations of temperament. Suspicion which may develop is founded on the excessive wealth of perception. Slight changes of countenance in others, or insignificant sounds, acquire an undue importance. Out of these exaggerations many sorts of hallucinations and delusions may ensue. The reasoning power may be in no wise impaired. Onlookers may notice the excitement of the patient—but none of the psychic elevation, suspicion, and play of emotion can be accounted for in view of our inability to enter into all these accessive experiences due to the narcotic influence.

Mental alienation due to alcohol has, at the root, disorganizing physical changes. Sclerosis of the nerve tracts is most common. Morphin, on the other hand, develops an insanity, or alteration of temperament, due to the peculiar involuntary sensational experiences. But with cocaine nearly all the psychic currents receive their first misdirection by the express will of the patient. He builds up personality on personality out of the emotional and intellectual experiences he selects. Once these currents are established, deficient metabolism renders it difficult for him to free himself. He suffers from fears or melancholy, delightful at first, but extending over into depressive states of mind which he would throw off, but cannot. All the alterations in sex, appetite, emotion, perception, intellectual effort, and double personality, are sources of temperamental change and enter into the fear, exaltation, or melancholy, by which with its hallucinations and delusions he reasons himself actually into the insane state.

Alcohol fears become associated with visions of objective entities. The horror which arises from overuse of morphin is largely constituted by unpleasant emotions, which have never the essential objectivity which alcohol gives rise to. Cocaine brings about peculiar feelings of psychic associations in which the attitude of friends, or the results of intellectual or business occupation assume insane proportions.

Cases of cocaine habit are entirely curable, consequently, if actual physical deterioration has not yet occurred beyond remedy. All that is needed is to guard against the return of the morbid ideas by substituting an environment and occupation which shall leave no time for introspection, and yet which shall not overtax the disordered temperament. Work is not to be feared. The moment of temptation returns with all its insidious seduction when the patient finds himself at liberty from employment. Laziness must be fought against. The patient must not be left to himself. And yet no undue watching must be brought to his mind. Plain, friendly pressure must be exerted, without any reference to the former abnormal states of mind. And the patient must not be allowed to come in contact with anything that could associate them again. Later on, when cure is established, it will be well, under

suitable companionship, to bring him again to the old associations, the room where his debauches took place, the neighborhood where his reputation was lost, the intellectual work, or the business, with which he was occupied. At all times forced feeding, and careful attention to hygiene must be insisted on. The cardinal rule must be that whenever he feels the craving return, instead of taking the narcotic he must eat a meal. Eat a meal every time in the day the craving returns. And sleep. Sleep whenever and wherever the opportunity presents itself. Our next subject will be *absinthe*.

WORK AND PLAY FROM A PHYSICAL STANDPOINT.

BY H. M. HAYWARD, M.D.

FROEBEL, the great German educator, has formulated four views of the necessity for work and play which are applicable from the nursery to the cemetery.

1. That the means for attaining the end for which man is created are inherent in the constitution of man as God made him—that is why there is work and play.
2. That he is related to a spiritual as well as to a natural world, and that these are worlds of cause and effect.
3. That there is an inflowing divine life into human life, and only through this does man live.
4. That through impression and expression the human being comes to an awareness of these truths. The scheme of education can be summed up in these principles, but the right balance of work and play demonstrates them; for the stage of growth and character of the child will determine whether he needs most the limitations of the idea of work, or more of the freedom coming in play. The child is ever the prime factor in his own education; and each truth or experience, as it comes to him, must bear within itself that which appeals to his dual nature—his mind and his heart, his understanding and his will—and no method which divorces these factors will ever be valuable.

This is the great problem now before our psychologists.

When it is fully solved, we shall know the relation of work and play in life. Practically, the child trainer must take into account in the development of pupils: (1) the kinds of work and play necessary to his growth; (2) the amount of work and play to which he has been accustomed; (3) when and where to make him work, make him play, allow work, and allow play. Each individual must be treated according to his needs, for example, the farmer's boy, whose life has been one of labor, and whose almost only companions are hard-worked parents; who makes mature comments on the animals in Aesop's Fables, but in whose mind Mother Goose awakes no glimmer or response, needs much tactful coercion in the matter of play different from the treatment of the street urchin of the same age, who has played games of all kinds and whose mind revolts from the drudgery of learning to read. The average very young child makes no conscious effort for growth; his physical and mental expansion is through the medium of spontaneous play. In the kindergarten, this natural spontaneous "play spirit" is made use of in the training of the child, but on entering the primary school he must learn to work with a conscious effort after thought-getting, and frequent periods of recuperation are necessary, yet it is possible to introduce the "play element" into his work, as the "work element" was

brought into his play in the kindergarten. When he rises above the primary grades, and his work requires more application and time, the play is represented by such employment as gives esthetic pleasure, as well as by the recess period of physical relaxation. He stores up for himself knowledge which he can use as he pleases, such as words, dates, facts; this is the result of his work; but not the only result, for the use of the muscles makes them more powerful and capable of doing harder things after each effort; therefore, every effort of the mind makes it more powerful and capable of more difficult performances. This power is one of the chief results of work, and no one can develop muscle or faculty power for another; each must do his own work. Work makes the cultivation of the individual life, while play is the balance. In it we want companions. The individual is merged into the social being, and we gain in sympathy and social adaptiveness.

Then again, some work is a necessity, for physical man needs sustenance, and food must be obtained or the body will die. The intellect, as well, weakens if it does not have its proper food and exercise. He who lives must work; he who grows physically and intellectually must work. In the same way there is a strenuous "must" phase of play; after work recuperation is a necessity, or body and mind are soon incapable of further work. Eating, resting, sleeping, are just as essential as food-getting and neglect of either results in deterioration and ultimately in racial extinction. When the problem of the means of existence has been solved, the mind and body have acquired a habit of work and play so that the exercise of each is a pleasure—gratifying, purifying and enlarging of individual tastes and inclinations. One's work, for instance, may be along the lines of scientific research, and play the gratification of the esthetic nature. The very young child is little more than an animal, and his actions are instinctive; but little by little his mind awakens with the growth of his body, and he gradually learns to know, recognize and judge of his environments; knowledge is gained through the play instinct, and through this medium he can best be trained. Instinct has taught him the necessity of nourishment, and in his games he gains the necessary exercise. At first, he is a law to himself, self-centered, not recognizing the rights of others; but the organized game of the kindergarten teaches him to recognize the rights of others, sympathy with them and for the dumb animals and the necessity for law and order. Having learned these facts, his games are a delight. He plays because he can do it well, because he loves it and his companions, and the first required play has become the more esthetic, expressive play. Now is the time to develop his individual mind—to teach him to work; he may be taught to reason and to make research for himself; to discern and admire in others high characteristics, and wish to emulate them; the thoughtful teacher will divide her attention equally between the play and work, and hereafter gradually emphasize the work until the child's developed mind recognizes that he must work or he will sink into the desuetude abhorrent to awakened thought. The strenuous work, the expressive work and the strenuous and the expressive play continue as elements in man's life until the day of his death, but the logical order of their emphasis in the development of the child seems to be in this wise: "essential play, expressive play, expressive work, essential work." At the time when a habit of work is

being formed, it is indispensable that exercise, nourishment and rest should be taken at regular times of necessary lengths. If this is neglected, the body becomes sickly and the mind is worn out from overwork, and conversely, if during the age when the observance of exercise, rest, games, etc., is most necessary, some individual mental work is not required, the result will be a sickly mind and an over-developed animalism. So it is seen that a proper distribution of work and play is indispensable to the best hygienic development. Each child calls for a different management, and must be assigned a course of study which will strengthen his weakness and encourage his natural growth. Here is a child, spontaneous, simple, sincere, it may be, but whose animal spirits are as yet ungoverned; he needs much help in solving problems which require consecutive reasoning and he lacks the ability to use what knowledge he has. Such a child has evidently learned much of the "law of the jungle"; in his play has had his social side well developed. He needs predominantly to form habits, to be taught to work. He wants the reasoning power which a knowledge of number gives; the proper use of words in language, the study in stories of incidents and lives as a unit, showing cause and effect; a study of nature and the results of breaking her laws. The work given this child must be the primary studies in number, reading, language; relations of things in size, direction, and distance; deeds of great men; many maxims and memory gems. Much of the work of this department, is expressive work nearly akin to play; and the little conscious work demands recreation in singing, physical culture, class recitations, as well as the care-free "play period."

There has been much discussion as to what play really is and means, and just at present authorities in the psychological field are dominated by the theory of Grosse, who has written two books—one on play and work of animals, and one on play and work of men—which are based upon the theory that all kinds of play are anticipatory industries of later years; there is a great deal that sustains this theory, but the view is very generally gaining ground that it is inadequate, and is not sufficient as a basis for educational work. Play is much more than this as pointed out by Stanley Hall. A great deal of play might be defined as just exactly what this is not. It is doing things that never will be of any kind of practical use in the world. Play for the body is something like the imagination of the mind. No one would attempt to say that fancy, in all its multifarious forms, is getting ready to think severely; play is simply fore-activities that later will become work. Play is really universalizing; the child does everything by play, and the real object of a good deal of play is not anticipatory of work. We have a long list of plays which we cannot explain in any other wise than as the necessary activity of rudimentary organs of the mind and body, that pass away or disappear, or are absorbed before maturity is attained; hence, of course, the activity of these cannot be anticipatory of work. Children have to live over the activities of the race. They have to be savages and fetish-worshippers, and that sort of thing, and it is necessary that these rudimentary organs, which are going to vanish out of sight, some of which are to be subordinated by the development of higher organs, shall be exercised. When the judgments can be pre-formed by stories in childhood, they seem in later years as

something they have imagined or dreamed; so, in controlling the fancy of the child, we are laying down paths over which conduct is to run its main traffic in coming years. There should be a great deal of latitude and liberty, and a good deal of diminution of our severity, in judging the conduct of children; their souls and bodies come into the world freighted with the promise of all that is best, and also freighted with a great deal of what is worst, in the world; that their bodies and minds send their roots deep down into the animal kingdom, and that we have not a single organ of our body or a single cell that we have not inherited from an animal ancestry; and that is true at least of some of the basal qualities of the soul's instincts and feelings. One of the functions of play is to vent all bad activities and to do in play form what constituted the lives of savages, and, if you want to be evolutionists, the lives of animals. As Hall points out it is necessary to exercise these things, so that the organs which they represent may be reduced, because these lower activities call into action higher powers that reduce them. Do not apply adult standards of morality to little children; let them be wild; let them play, with their lies of fancy imagination. The soul needs to be the instigator of all faculties and the seat of dreams. Childhood will have its rights in spite of teachers and it is necessary, in order to relieve that hunger for something that is larger. If they do not learn the gracious lies of poetry, with perhaps a great deal of imagination in it, they will make them, for that is the play of the mind. Set children at work when they are fatigued, and not scholarship, but nervousness is produced, and the American child is the most nervous child in the world as Munsterberg has pointed out. According to the child studies that have been made, it has more automatism than any other child. It is more easily upset; its mind is quick alert, and it matures younger than most children. The American child is liable to get on its nerves; cannot stop play; cannot go to sleep readily, jumps and twitches when it does go to sleep. If we could only find a way of getting children for work when their minds are in their best condition, we should get superior results. The mind which is really fresh can do several fold more work than the fatigued mind, so refreshment is good when given in the kindergarten, and the excellent practice which prevails in some of the kindergartens of allowing naps in the middle of the day. It is one way of systematically restoring and saving the child from fatigue, one of the great enemies of the race. Schools bring on fatigue, which tends not only to neurasthenia, but to degeneration and arrest, and that is something that the little girl is very much more prone to than the little boy, for it is a very impressive and significant fact that the female organism has the power to draw upon its reserves much more readily than the male organism; that is true of the body and of the mind. It is very much easier for a woman to overdo and not know it; very much easier to draw upon those reserves which are meant, by nature to go to posterity, or to future life, or to longevity—to draw upon them and not know it; and when the crises come incidental to motherhood, change of life and old age, then these troubles return. Bear in mind that the trouble with work is that it means worry, for work is all right, and you can do a great amount of work, just so long as you keep well nourished and sleep, and keep from anxiety; but the anxious, hard-worked

child is in danger.

Writers from the days of Adam have felt that the manifestations of young blood were hostile to the best interests of society; "the imagination of man's heart is evil from his youth," say the Scriptures, while Job defends himself against his accusers, protesting that they make him possess the iniquities of his youth, which he has long outgrown; while David offers a prayer to his Creator, imploring him not to remember the sins of his youth.

Shakespeare would be patient with the pride and riot of the adolescent, but the great poet nevertheless realizes that ultimately the madness of youth must be tamed; the intemperance, the egoism, the bravado of young blood must be brought into correspondence with the requirements of life, and activity must be drawn off from profitless, and even harmful, enterprises and turned into productive channels. Undue self-exaltation, the vanities of looks and possessions, the pride of purse or of intellect, must be tempered by consideration for the feelings and claims of others; passion must be bridled and subdued that it may not lead its possessor athwart the laws of health or the land. The deep-seated, instinctive activities of adolescence must be checked or, at least, modeled into conformity to the requirements of adaptation to a complex altruistic, ethical, and social order. And how may this inhibition be best brought about? Is it a matter of guiding the forces of life, depending upon it that, if we employ them all at certain points of our own choosing, there will be nothing left to operate at other points against our wishes? The neurologist lays chief emphasis upon this mode of inhibition, especially in the immature brain, where organization is still imperfect, where the checking system is still inoperative for a great variety of actors. Now, the great racial traits bequeathed to the child as instincts constitute the routes which the adolescent may pursue with greatest facility and pleasure; as a result of unnumbered ages of traffic these old ancestral thoroughfares have been made easy and comfortable to the modern traveler, and so he is but too apt to choose them beyond all other courses for his journeying. This sounds pessimistic, for if the fate of every young voyager has been determined by the practices of his ancestors, what can we do about it? The adolescent will live out his instincts, and we cannot stop him, do what we may. Yet hold a bit: there is a way of throttling instinctive actions that alienate the adolescent from the world about him. Bring to bear upon him, with tremendous force, stimulations which meet with responses that absorb the whole of his life; stimulations emanating from impressive, commanding personalities with whom he comes in contact; stimulations from biography, from history, from literature, from science, from his games and plays, and all the rest that is good and elevating. This doctrine of inhibition is seen in its outward effects in all the phenomena of daily life. How quickly a child's conflicts with his companions, or his assault upon household finery, or anything of the sort, is abandoned when there is made to play upon him some strong stimulus which incites activities of a different character, as when a game is organized for him, or he is given tools to work with, or he is invited to go to the circus, or he is furnished with an attractive book to read! The world beats in upon the child, and that which makes the strongest impression, depending upon its significance for him as

determined by the qualities of objects themselves, and by his whole previous experience with them, or something like them—the strongest impression win the child's recognition and determine his conduct. In sickness, the organism is depleted of its energies and few activities of any sort occur. Even profound and instinctive actions, which in fair weather, urge their possessor on to action, now have no force; no energy is set going. But as the sick one returns to health, and the ravages of disease are repaired and there is something over and above what is necessary for the support of vital function, then the old accustomed reactions reappear, and in time return with all their original force, provided that some new interests have not intervened. When a boy's energies find an outlet through those channels worn deep from the ceaseless treading of the race; when he does the thing that humanity before him has done for a practically limitless reach of time, whether this produces immediately valuable results or not, then he plays. These old racial activities constitute the lines of least resistance for the individual; there is no opposition, no impediment, no opening up of new highways. In work there are barriers to be broken down, new pathways to be blazed forth, unpracticed activities to be learned; the boy responds subconsciously to the old enticements, and there is of necessity a struggle in doing the new thing when the old seems so much easier. Thus play affords for the adolescent, or for anyone else, the highest degree of pleasure, since the whole being becomes engaged in it without reserve and without compulsion and there is no division of personality in such a situation, no tension between motives, no long weighing of considerations; the whole life is given up in harmonious unity to the doing of the thing which is felt as play. But in work enterprises foreign to the one in hand make a constant appeal for the attention and devotion of the worker; the boy pores over his geometry, and a small voice within him whispers of football, of skating, of the ball-room, of the billiard-table; and it gains an audience, it secures some response—enough, at any rate, to set up a struggle in the soul, which gives a consciousness of effort for the student in holding himself to his task. Now, in the treatment of youth, the superabundant forces of young life into channels of social and moral action, of usefulness and frankness and diligence and courteous demeanor and courageous action if this be our leading purpose, can we attain it best by engaging the adolescent mainly in play or mainly in work? Shall we seek to beget conduct of the right sort by soliciting from our pupil reactions that enlist his whole being, and that to him have all the joys of play; or shall we, for the sake of cultivating a vigorous, stalwart character, one that will regard with equal stoicism both drudgery and happiness in the affairs of daily life, deliberately bring the boy and girl face to face with situations which must be dealt with in a stern and serious and painful manner, and which are not of themselves in accord with the child's interests and spontaneity? Take counsel of the great masters who have been students of child nature, and who have reflected long and earnestly upon the best manner of teaching the young how to shoot, such as Aristotle, Quintilian, Montaigne, Rousseau, Locke, Spencer, and all the rest, and we receive but one answer, namely, that the best success is attained when through the child's play we guide and direct him until he has arrived at

the estate of manhood. Play, says the modern scientist, organizes and solidifies personality in the most efficient way, since it commands all the powers and faculties of the mind in its prosecution. What the child can play at will attract him, and so will exert a profounder influence upon him than if it was forbidding to him. "Little profit grows where no interest is taken," says Shakespeare, and both psychology and experience indorse the proposition. But what of work? Shall the adolescent do nothing but that which engages him in a pleasurable way? Shall he not be made to struggle with difficulties, to put aside the blandishments that lure him from the tasks that must be performed if he is to realize the most in his life? The solution of the problem will seem the easier when we consider that much that is of profit to one in the present age of the world, is of recent origin in the race, and it has not yet become established so deeply that it is inherited by the young as instinct, thus constituting an easy way for energy to express itself. Much of what a youth must learn is new and difficult; for life is more complex to-day than it was when the race was at the starting-point. The crude, instinctive actions which served well enough when things were simple, are now wholly inadequate to successful living, and in some instances are hostile to the best success in life. The race is ever growing more altruistic, and the scope of individual action must grow more restricted, in the sense that purely selfish deeds which characterize the early years of life must be more and more inhibited; the boy must observe the golden rule to-day more fully than did his ancestors; while the sphere of knowledge is widening every day, and the adaptation to the world which this gives is growing more complex, and intricate, but at the same time more perfect and desirable. These higher phases of life must be mastered by effort; youth must work, if maturity is to be happiest and most successful. Play gives mastery of only the simplest process of living; the fundamental requisites are certainly gained in this way, but everything finer and more subtle and complicated comes only by diligent application, and that not voluntary or spontaneous, at the start. Growth in the higher reaches is secured only by struggle; the tendency is to stop on a lower plane or development, where the fundamental instinctive activities suffice to keep body and soul together, and there must be constant pressure brought to bear upon the learner of life's way to get him to ascend to the point which the race has reached in social, intellectual, ethical, and even physical living. The boy will not, unaided, and unforced, equip himself for the duties and privileges of life in civilized society by making his own the insight and power and skill and control which history and literature and science and mathematics give; simpler things will appeal to him far too seductively.

Youth climbs the mountain of life most naturally and most effectively by play, but the topmost point can be reached only by work, so what is the golden mean? There is seen to be a harmonizing principle, when it is recognized that work becomes most effective when one has an end in view to attain by his efforts. If there is nothing but a blank wall ahead of him, his life will be miserable indeed. Work must always have a clear goal, toward which it tends, and this must be worth reaching. Mere drudgery for the sake of discipline kills personality, initiation and spontaneity; the activities it produces are always the results of force imposed

from without. Drudgery which is not for some useful end does not stir the inner life to noble deeds, it does not result in that organization of the being where all works together in harmony. And youth is the time of all others when things that receive any consideration must have a life-relation; they must help to solve some of the problems that confront a mind opening up rapidly to the meaning and responsibilities of existence—problems of a social, an intellectual, and a physical character. Then anything, which promises to be a guide to youth will be mastered, no matter what effort is required to attain it.

CURIOUS FACTS CONCERNING MEDICAL DEMOGRAPHY.

BY A. N. ULRICH, M.D.

THE average density of the population of the entire earth is estimated to be ten persons to the square kilometre, or in English terms, twenty-six to the square mile. The grand divisions are peopled as follows: Europe, eighty-eight to the square mile; Asia, forty-nine; Africa, fifteen; Oceanica, ten, and the Americas, five to eight.

Levasseur has estimated the relative density of population in Europe: Belgium is the highest, with five hundred persons to the square mile; Holland, three hundred and forty-four; Great Britain, three hundred and eight; Germany, two hundred and seventy-two; France, two hundred and twenty-two, down to Norway, which averages but fifteen. The over-population of Europe has attracted scientific attention, where civilization is said to be threatened by a survival of the unfittest, for generally speaking the class which multiplies the most rapidly is the ignorant and least worthy.

Russell has shown the consequences of over-crowding in Glasgow, where of the population of 511,000, 25 per cent. (126,000) lived in one-room tenements, and 45 per cent. (228,000) in two-room houses. "It is these small houses which produce the high death-rate of Glasgow and give to that death-rate the enormous proportion of deaths in childhood. Their exhausted air and poor and perverse feeding fill our streets with bandy-legged children." In these houses, the death-rate is 38 per 1,000; and even in districts with larger house, 16 to 17. It is a terrible fact that 32 per cent. of the children who died in Glasgow under five years of age, died in one-room tenements. London's death-rate has been reduced from its high figure at the beginning of the century and to-day it is one of the most healthful of the great metropolitan cities. Geological structure can affect the health of communities as illustrated by Grimshaw, Registrar-General for Ireland, who demonstrated the fact that enteric fever had not diminished in Dublin while typhus had, and that its high rate maintained in Dublin, situated in a country with a low enteric death-rate, was relatively higher than in London, situated in a country with a higher rate. There were geological conditions in Dublin favorable to its spread in the previous strata of sand and gravel formed by an old raised sea-beach, on which the especially unhealthy portions of the city were situated. This gravel bed lay in clay and rock, so that it retained all the fluid filth cast upon it or soaked into it from the river; it was like a basin of dirty water placed in the middle of the city, over which houses are built for 80,000 people. The Spanish capital, Madrid, has long enjoyed the notoriety of being one of the least healthful cities in Europe, the average an-

nual mortality rate having been 41.2 per 1,000, and only exceeded by St. Petersburg and Buda-Pest. Various physical conditions render the climate of Madrid trying and unhealthy, but local municipal sanitary neglect is the principal cause, with poor drainage and uncovered drains.

The actual decrease in the birth-rate of France, which has so concerned her statisticians, has been at the rate of 12,000 annually, so that in this respect, France now only holds the fifth place among civilized races. Eight per cent. of the births are illegitimate, while in the Department of the Seine (Paris) the average percentage of illegitimacy is actually 25. The total births reported in the United States during the census year, 1880, were 1,577,173, of whom 806,866 were males and 770,307 females, a proportion of 1,047 males to 1,000 females, a birth-rate of 31.4 per 1,000 of living population, which, as in the case of death-rate, is undoubtedly below the true figures, which Billings estimates to be 36 per 1,000.

The population of France in 1800 amounted to 27,349,000. Eighty-five years later it was 37,983,500, an increase of 10,634,000. The total births during this period were 80,456,300 and of deaths 69,953,100, the former being in excess only 10,503,200; consequently, when emigration and abstraction, of population by the loss of national territory are considered, the amount of foreign immigration and its share in the maintenance of population are readily estimated; the official return of the number of foreigners residing in France at various periods exhibits progressively increasing numbers and the foreign population of France has trebled in thirty-five and doubled in twenty-one years, and by the end of the century, with the present low birth-rate, will probably exceed two millions, and in fifty years possibly amount to one-third the entire population. Even at the present time there is about one foreigner to every thirty inhabitants. The influx, however, is largely of assimilable people, Belgians furnishing 433,000, Italians 250,000, Germans 85,000, and English only 30,000, so that, their advent cannot be considered a national calamity, but French demographers look upon this increase with alarm, and Chamberland invites the attention of the authorities, suggesting that an indirect means of antagonizing it is to lessen the mortality, so as to increase the excess of native births.

The excess of infant mortality is a social as well as a sanitary question, for it is invariably found among the most poverty-stricken sections of the population housed in the most neglected and insanitary dwellings. The most effectual method of dealing with this terrible and far-reaching evil, the rate of infant mortality, is perhaps that prevailing in the Peabody Improved Dwellings in London. These dwellings have contained, during five years, a mean population of nearly 20,000 persons, residing to a large extent, in the midst of districts in which very excessive rates of infant mortality prevail, and consisting of the poorer of the wage-earning class; yet the mean rate of infant mortality among this population did not exceed 145 per 1,000, which was 8 below the general rate in the whole of London. French demographers are profoundly interested in the question of the defective birth-rate of their nation, which seems to forbid the hope of ever peopling their colonies with their own race, and the matter is more serious since their vast Indo-Chinese colony

has been added to their possessions. In Algeria, prior to the recent sanitary works, it was feared that the low birth-rate would imperil the future of the French occupation, for twenty-three years after the acquisition of the colony M. Vital stated that all French children born in the colony were pitilessly mowed down, and General Duvivier at one time declared that the cemeteries were the only French colonies that grew steadily.

In Japan the marriageable males between the ages of 14 and 26 are several thousands in excess of the females between the same ages, and up to fifty the ratio increases between the sexes, after which it is reversed, and from fifty-eight to seventy, there is an excess of more than 10,000 females over males. Here the annual birth-rate of males is greatest, but is counterbalanced by their greater death-rate. In 1887 the average number of children to a family was, in France 3.2; in Prussia 4.14; in England and Wales, 4.6; in Scotland 5.25, and in Ireland 5.45. The fact that while the birth-rate in Ireland is only 23.2 per 1,000, there is the largest number of children to the family is accounted for by the Irish Registrar-General by the actual emigration of so many productive persons. At the beginning of the century, French families averaged 4.14, but in 1887 Lagneau reports the actual number of legitimate children born to a marriage as only 2.97, while one hundred French women under fifty years of age furnish only 16 children, or but one birth to every six households.

Lagneau, in a "Demographic Study of the Diminution or Increase of Families," read before the Académie de Médecine, stated that all aristocracies and close bodies of men have gradually lost in number, and would have become extremely reduced without occasional mixture with new blood, for example, between 1583 and 1654, the Sovereign Council of the city of Berne admitted 487 families to citizenship and in 1783 only 108 of these families had escaped extinction; and out of 458 baronets created by James I and Charles I, between 1611 and 1648 only 107 of their titled representatives remained in 1731. In 1840 only 8 out of 80 noble families existing in 1400 had escaped extinction. Chateauneuf, after scrutinizing the pedigree of 380 noble French families, found that their average duration was 300 years. The great burgher families of the Hanseatic towns, Holland and Venice, disappeared rapidly; not one of the original patrician families of Zealand now exists. Among the poor the extinction of small tenant families is even more rapid; for example, out of 127 families, numbering 800 souls, in the commune of Marigny-en-Orxois, in 1555, only 14 existed in 1836, so that the families of workmen decreased like those of the noble and bourgeois classes. The struggle for existence in Anglo-Saxon communities has the same effect. The most complete study made by Lagneau, who estimates that of 100 families having 300 children, that is, 3 children to a family, at the fifth generation, after 124 years, more than half have no male lines of descent, only 49 males then contracting marriage. By the seventh generation, after 186 years, about two-thirds of these 100 families have no male descent, only 34 contracting marriage. At the ninth generation, after 248 years, the male descendants transmitting the paternal name represent only one-fourth, that is, 2 of the 100 primitive families. At the fifteenth generation, after 434 years, nine-tenths of the original hundred families will have no males left to continue

them. The happiest nation is that in which the proportion of men and women is nearly equal, in which the number of illegitimate births is least, which contains the greatest number of healthy adults, in which the average life is longest, and in which the proportion of people over sixty years is highest; and, curiously enough, according to the *Paris Temps*, France is the country in which these conditions are most fully met. It undoubtedly possesses the greatest number of persons of the effective ages from fifteen to sixty. Thus, among each 10,000 inhabitants France has 5,373 between these ages; Holland, 4,964; Sweden, 4,954; Great Britain, 4,732, and the United States, 4,396. According to Bertillon, among every 1,000 inhabitants those over sixty number, in France, 108; in Bavaria, 94.8; in Switzerland, 90.2; in Belgium, 88; in Italy, 82; in Sweden, 80; in Holland, 80; in Paris, 74.7; in England, 73; in Prussia, 70; in Saxony, 69; in Spain, 62; and in Hungary, 48.5.

The average age of all living is: in France, 31.06 years; in Holland, 27.76; in Sweden, 27.76; in Great Britain, 26.25, and in the United States, 23.21. As a greater proportion attain old age in France than in other European countries, they are correspondingly in excess among the details. Among every 100 dead, those over sixty years of age are: in France, 36; in Switzerland, 34; in England, 30.

There is a disposition on the part of very old people to exaggerate their ages through vanity, actual forgetfulness, ignorance or love of notoriety. The first official attempt to verify the ages of alleged centenarians was made in Bavaria in 1871, when it was discovered that only one among thirty-seven examined had really passed the hundredth year. Canada was noted for the number of its centenarians, and yet out of 421 persons reported to be of this age, the facts concerning only 82 could be ascertained, and among these only nine were able to establish their claim to the title. The Bureau de la Statistique Générale de France has undertaken the same task in that country, where among 184 reported as centenarians, satisfactory evidence of the fact was only obtained in 83 instances. Of the other 101, false statements were made in 53 instances, as a joke in 4 cases, and as exaggerations in 49, and in 48 there was no definite knowledge.

The sex and civil status of the 83 indisputable centenarians are as follows: Single, males 6, females 10, total 16. Married, males 2, females 1, total 3. Widowers or widows, males 23, females 41, total 64, aggregating 31 males, 52 females, total 83. The women are largely in the majority, and it is a matter of note that the most of them are indigent, a fact likewise referred to by the Registrar-General of London in his thirty-eighth report, that among 87 English centenarians (27 men and 65 women) 12 had died in the workhouse or almshouse and the immense majority were in want or working. There were 380 centenarians in Italy in 1887, of whom 247 were women and 133 men, and Professor Cexis found 39.6 among 1,000 persons of both sexes who had reached or passed their seventieth year. The native medical journal of Japan, the *Sei-i-Kwai*, enables comparison to be made with that race as to longevity. The population of Japan, according to the census of 1887, was 38,507,177, of which number 1,086,001 were between 70 and 80 years of age, 247,055 between 80 and 90, 12,200 between 90 and 100, and 97 were 100 (24 men and 73 women),

the oldest two being women respectively 109 and 111 years of age.

The French medical officers of French military and naval services are indefatigable in accumulating materials for a complete system of vital statistics of France and her colonies. Marestang, of the French Navy, contributed an interesting demographic account of the Island of Saint Bartholomew, which, after nearly a century's allegiance to Sweden (1784-1878), passed by treaty in the latter year into the hands of the French, who thus for the fifth time became its owners. The population in 1883 amounted to 2,555 persons, 1,072 males and 1,483 females. Settled by Normans, in 1648, intermarriage has resulted in preserving the Norman accent, customs, character and forms of speech. The same names appear on the registers of births, deaths and marriages as in 1770. Selecting 17 Norman names, forming 235 families and comprising 1,465 individuals, exempt from admixture, M. Marestang made them the subjects of his special investigation. During the 8 years since the retrocession (1879-1886) inclusive there had been 123 marriages and 612 births—five to each marriage—and among the selected Norman families 100 marriages and 442 births, or 4.42 to each marriage. Among 50 families taken indiscriminately among the nearest hamlets to Gustavia, the capital, he found 249 children (124 boys, 125 girls), giving as the average number of children to a family 4.98, and assuming an aggregate total duration of 786 years for these 50 unions, an average of one child every 38 months for the genital parental life.

The insular mortality for 8 years was 404, an annual mean of 50.5, or 19.76 per 1,000 for the whole population; the deaths in the selected Norman group of 235 families was 210 or 26.25 per year, or at the rate of 17.91 per 1,000, and therefore below the rate for the whole island. Among the 50 special families in which there had been 249 births, there had been 32 deaths—23 during the first year (923 per 1,000) and 9 during the second year (361 per 1,000), giving a mean infant mortality of 128.5 per 1,000. A race may be said to be acclimated when it maintains (1) its force of demographic expansion, (2) its normal longevity, (3) its aptitude for physical and intellectual labor. All three of these conditions have been realized by the white population of St. Bartholomew.

Southern writers generally believe that emancipation has accelerated the physical degeneration of the American negro and that the next census will show a diminution in the hitherto rapid birth-rate and an increase in the death-rate; for example, Corson, of Savannah, reviewing the causes which are leading to the extinction of the negro, says that while slaves they were regular in diet, dress, exercise and their habits of living; they are now flocking to the cities, where their living is necessarily of the poorest character, and education causes them to despise and neglect such employment as they can get. Before the war they were much less susceptible to malarial diseases than the whites and enjoyed almost immunity from yellow fever. Recent experiences show they are liable to both, and that enteric fever, dysentery, syphilis and consumption are increasingly fatal diseases among them. Thirty years ago phthisis in the pure black was almost unseen in medical practice; the negro now suffers in greater degree from the few diseases which used to be his enemies and falls a victim to many to which

he was then a stranger. The mulatto is worse off, for he has lost the immunity to certain diseases enjoyed by his fathers of pure African blood, while he has acquired none of the robustness belonging to the Anglo-Saxon.

Byers, of North Carolina, says: Any race of people which can, in so short a space of time that has been allotted to it as freemen, double both its mortality and criminal rates—and the negro race has done this—is doomed to destruction. The average increase for the white race during the last three decades is about 50 per cent., while that of the negro has scarcely been 20. Of the entire criminal class of the country, the negro now forms nearly 25 per cent. and Andrews has said that insanity has increased among them (1870 to 1880) at the rate of 26 per cent. Professor Chaille says the death-rate of children under five years of age is regarded by sanitarians as a most sensitive and reliable test of the sanitary conditions of a people. In New Orleans, this amounts to 71 per 1,000 for the whites and 130 per 1,000 for the blacks. In 50 cities enumerated in the last United States census, St. Paul exhibited the lowest death-rate at this age (31), and the negro children of Charleston, South Carolina, the highest (205). Deaths from childbirth (3.57 per 1,000) were twice as great among negro women as among whites. The negro female has a greater vital resistance and, consequently, greater expectation of life than the male.

THE SUCCESSFUL TREATMENT OF CHLOROSIS.

BY J. T. PRATT, M.D.

MANY authorities now consider chlorosis a separate primary disease of hematogenesis, due chiefly to hereditary influence, though acquired disease may have influence, being a result of degeneration owing to the frequent association of hypoplasia of the circulatory and generative organs. Goloubine not only considers chlorosis a primary disease, but thinks the digestive and nervous symptoms are collateral, as are those of the circulatory and generative organs; it is, in his belief, hematogenic, though it may appear as the sequel to various other diseases. Women are especially affected, because they have normally less energetic blood-production than have men. Almost all cases of chlorosis are preceded by habitual disturbances of digestion; that the blood-circulation was in direct relation to such digestive disturbances; and that recurrences seemed to depend upon them, while one might say with equal pertinence that the digestive disturbances are proportioned to the degree of anemia, yet the disease is a constitutional affection, and it may be brought forth by many other conditions than digestive disturbances. Captain drew attention to the frequent enlargement of the thyroid in chlorosis, and expresses his belief that the disease is sometimes dependent upon abnormalities in this gland, and may, at times, be an exhibition of the intoxication which commonly produces Graves's disease. He considers that the great frequency of the association of the goitre and chlorosis proves that they are not simply coincidences, and his belief is supported by the fact that iodine, or sometimes iodothyroidin, removes the symptoms of chlorosis.

Chlorosis in its action upon the heart has for its first effect dilatation; the displacement of the apex beat, which is hardly ever to be found in the normal position in a

case of chlorosis sufficiently advanced to produce symptoms urgent enough to induce the patient to seek for treatment; as a rule, in a well-marked case of chlorosis the impulse of the heart will be found either in the nipple line, or more commonly outside it. The frequent result of this dilatation, as it effects the left ventricle is regurgitation through the mitral valve; this condition is very common in chlorosis without adopting Balfour's view that the systolic bruit heard at the so-called pulmonary area is necessarily of functional mitral insufficiency. There will be no hesitation in admitting that regurgitation is taking place through the mitral valve, when there is a well-marked systolic bruit audible at the apex of the heart, and in the axilla, and at the angle of the scapula. But on referring to notes of four hundred consecutive cases of chlorosis Coley found a bruit audible at the apex in two hundred and seventy-eight, and at the angle of the scapula also in one hundred and twenty-three. It was audible at the pulmonary area in all. That the evidences of mitral insufficiency were generally due to functional condition was proved, not merely by their great frequency, but by the fact that in a very large number of the cases the bruits entirely disappeared when the chlorosis was efficiently treated. This is so general, that if the evidences of mitral regurgitation in a case of chlorosis persisted in spite of continued treatment you have to deal with chlorosis complicated by the presence of organic mitral disease caused in the ordinary way by a previous attack of endocarditis. This combination of chlorosis with valvular disease is not very uncommon; but when it occurs the chlorosis is rather likely to be overlooked. The appearance of anemia may be masked to a certain extent by the engorgement of the facial capillaries produced by mitral regurgitation; and the shortness of breath from which the patient suffers is attributed entirely to the valvular defect, although it is really due, at least in part, to the anemia. Anemia left untreated furnishes just the condition in which the muscular compensation for a valvular defect is most likely to fail. In an uncomplicated case of chlorosis, when a well-marked bruit is heard at the apex and at the angle of the scapula, those who are guided by ordinary traditional clinical teaching would be apt to make a mistaken diagnosis of structural mitral insufficiency with a grave prognosis. In chlorosis a bruit is often audible at the apex and in the axilla when the patient is lying down, but not in the erect position, except for a few minutes after rising. Such a bruit is often loud, and is often audible when, as a result of treatment, the bruit at the pulmonary area has entirely disappeared. On the other hand, it is quite common to find a bruit at the pulmonary area when none can be heard at the apex in any position of the patient. The bruit at the pulmonary area is not as a rule greatly influenced by posture. In chlorotic patients a systolic bruit at the apex is very apt to be produced by any thing which causes the heart's action to be at all exaggerated. Hence a well-marked bruit is often heard at the commencement of the examination which entirely disappears in a few minutes, when the patient's nervousness has a little subsided. In the statistics above given, Coley noted only those bruits which were audible when the patient was sitting or standing, and when the heart's action was quiet as possible. His object was to record the minimum of physical signs, so as to understate, rather than overstate, the evidence in favor of this theory.

Intercostal neuralgia, so common in chlorosis, is gen-

erally found on the left side; less on both sides, and comparatively rare on the right side only. Frontal headache is also common, while ulcer of the stomach is a common complication, but it would be impossible to furnish statistics of its frequency, because many cases do not present symptoms which could be relied on as absolute proof of its presence. There can be no doubt that it is a good practical rule to treat every case as ulcer, where there is pain and frequent vomiting after food, the pain being relieved when vomiting has occurred. Some have suggested that if the anemia is treated the ulcer of the stomach may be left to heal itself without any special care. Lateral curvature of the spine, in its slighter degrees, at least, is very frequently associated with chlorosis, the muscular weakness produced by anemia favoring its development. It is very commonly supposed that lateral curvature is rare in patients belonging to the working class, but this is a pure delusion. Severe cases of lateral curvature are not very common in any case. Slighter cases are very common in the classes that become hospital out-patients, but it is only among the well-to-do that the slighter degrees of curvature receive attention from the patient or her friends. If they are discovered at all, it will be in the course of a medical examination of other trouble.

Backache is very often found in connection with a certain degree of lateral curvature; when we find an habitual curvature, which the patient cannot correct for herself, but which can be corrected more or less readily by the hands of the examiner, returning shortly when their support is withdrawn, we have to deal with a condition which is quite important enough to require special consideration. When it appears before the development of the spine is complete, there is always a possibility that it may lead to structural deformity, although this does not always take place, even when the habitual curvature is entirely neglected. But apart from this danger, such a curvature may be sufficient to produce a deformity which is quite as unsightly, while it is allowed to exist, as any distortions connected with actual malformation of the osseous structures. And it always involves a sense of weariness and dull aching in the back, although the patient rarely makes any special complaint of this, regarding it probably as only a necessary part of her illness. "Shoulder-straps," which appear in all instrument-makers' shops, are worse than useless; simply teach the patient how to correct the faulty position, and examine her from time to time until the habitual curvature is entirely corrected. It is often desirable to enjoin rest in the recumbent position for an hour or more in the middle of the day. But this rest should be taken on a comfortable couch, not on a torturing "back-board"—still less on the floor. To teach the patient how to hold herself upright, and to ascertain by repeated examination that she is actually learning to do so habitually—is very simple in theory, but to carry it out successfully requires patience and much attention to detail. The results are entirely satisfactory if persevered in, however.

In a paper on physical rest in the treatment of chlorotic anemia, Taylor says: "What I wish especially to lay stress upon is that the classical treatment by iron, or by iron and purgatives, is not assisted, but much counteracted, by the prescription of exercise. Against fresh air I have nothing to say so long as it does not involve exercise, either by walking or riding. It is, of course, partly a question of proportion; the worse the

case the more absolute should be the rest. In a slighter degree of anemia, or one already recovering, carriage exercise may be allowed, while in the severe forms the patient may be with advantage kept in bed entirely, the most certain means of keeping a patient absolutely at rest. An intermediate prescription is that the patient shall get up only for three or four hours in the afternoon."

Forcheimer's experiments lead him to believe that the anemia of children, in whom we find such enormous variations in the quantities of hemoglobin following intestinal troubles, is most effectually removed by arsenic preparations, and that the arsenite of copper is very valuable in such cases and also in adults, where, as is sometimes the case, the bowels are loose and the intestinal catarrh can be looked to for the cause of hemoglobin diminution.

The best possible results as shown by blood analyses as to time, quantity, and permanency, are obtained by combining an antiseptic with a blood preparation. Forcheimer gives 5 grains of hydronaphthol of salol before meals and the same quantity of hemogallol immediately after the meal; when these preparations cannot be obtained, large quantities of beef-juice can be substituted or any of the many preparations which contain blood; precaution must be taken to see that they actually contain blood. Next in usefulness comes the administration of the antiseptic before the meal, and some form of iron after the meal; carbonate of iron has given better results than any other preparation Forcheimer has used; in other hands peptomangan has proved excellent. It is difficult to decide as to the relative merits of iron or antiseptics when given separately; it is certain, however, that the antiseptics will succeed when given alone in many cases in which iron fails.

After extensive trials of the hypodermic injection of ammonio-citrate of iron in cases of chloro-anemia. Dori finds that this salt gives excellent results. Patients are able to tolerate large quantities without inconvenience, and its therapeutic effects speedily become manifest in an increase of the hemoglobin contained in the blood, accompanied by marked improvement in the patient's general condition. The daily dose usually employed was about 3 centigrams, dissolved in 1 gram of water, and injected into the interscapular region.

Stomach conditions must be studied in chlorosis; look for catarrh and neurosis of the stomach; we can diagnose these two conditions by way of exclusion; make sure that no other affection is present before you are justified in attributing the symptoms of dyspepsia—common to all stomach troubles—to catarrh or neurosis. It stands to reason that primary, general, or organic diseases of the body must likewise have been previously excluded. This is the point where diseases of the stomach, like other disorders which are apt to be turned into a specialty, require an extensive and profound acquaintance with the other departments of internal medicine for their complete understanding. To distinguish catarrh from neurosis we find that the general symptoms are much the same; chemical investigation affords no clue; mucous is often absent in catarrh. The previous history, on the other hand, is often valuable; it may show influences to have been at work which, as a matter of experience, tend to produce one or the other condition. People who have been smoking or chewing of tobacco, whose teeth are in bad condition, who are used to eating hastily and at irregular hours, whose choice of food is improper, or whose complaints date

from some acute attack of indigestion, may reasonably be supposed to suffer from catarrh. With a history of mental overwork, or strain, or worry, disappointment in love, misfortune in business, and so forth, one should incline to favor neurosis, especially where symptoms of general neurasthenia or hysteria may be detected. In a great number of patients both complaints are so intimately mixed that it is only by the effect of treatment that the share of either one may be estimated. Many old catarrhs have thus been greatly benefited by change of environments and of climate, showing in how great a measure they were owing to nervous trouble. Chronic gastric catarrh is commonly regarded as a disagreeable and tedious, but hardly dangerous, complaint, but that is a mistake, for if it is allowed to last long enough, it leads to gradual atrophy of the glandular elements—gastritis atrophicans—with symptoms of dyspepsia, irregular pain and steady loss of flesh. There is but little hydrochloric acid, as but little glandular material is left; while lactic acid is absent, there being no stagnation and decomposition, as the progress of the chyme into the intestine is rather facilitated than impeded, owing to the remarkable activity and endurance of the muscular elements. Finally, when all the glands have disappeared, the condition called "phthisis ventriculi," or, better still, anadenia is produced. As a test a weak solution of hydrochloric acid is introduced into the stomach, where it extracts the pepsin from the glands; being allowed to act on a flake of albumen, it digests it if containing pepsin. If the flake merely swells up, that is a sign that there is no pepsin in the acid, and that consequently there were no glands left in the stomach. A stomach without glands is practically useless; the intestine alone is then obliged to do all the work of digestion. It is not able to do so very long, since its glands also become subject to atrophy and pernicious leukemia results. Such patients have not been known to live more than eight years, dying often of some intercurrent trouble which their enfeebled constitutions are unable to overcome. It being of no use to stimulate the stomach, we prefer to reinforce instead the alkaline process of intestinal digestion. For this purpose use the ferment of the pancreas, or papin can be given in its stead, while food favoring fermentation, such as vegetables, should be avoided. If nevertheless, fermentation sets in, as it sometimes will, owing to the use of milk, which cannot well be foregone, then the stomach-tube should be employed. Considering the stomach-tube, you should use it in dilatation of the stomach; in carcinoma, when inoperable; life is thus prolonged and rendered bearable; in chronic ulcers, never in recent cases; finally, in catarrh and neurosis where fermentation has set in. Here it is best used in the evening, while the early morning is preferable where it is applied as a stimulant. The mere introduction of the tube without irrigation may prove valuable under these circumstances, for its moral effect. The result is not uncommonly so much the better the greater the resistance that has to be overcome in introducing the tube. Do not indulge in laxatives to overcome the chronic constipation often met with. Enemata should be employed in their stead, of lukewarm temperature in the beginning; later on, colder; thrown into the rectum in the evening, to be retained, if possible, overnight. At the same time, cold compresses may be applied to the abdomen. Unfortunately, this treatment is often frustrated by the patient not being able to stand the clysters; this may be owing to proctitis or hemorrhoids, or to

nervous irritability of the bowels, which often manifests itself by reflex vomiting. In such cases no other course is left but to resort to aperients, which should be of the mildest kind; the so-called St. Germain tea has been recommended as follows:

R	Foliorum sennæ	5v;
	Florum sambuci	3iii
	Fructus foeniculi,	
	Fructus anisi, aa	3iiss;
	Potassii bitartrati	32-3;
	Acidi tartarici	32-5
	M.	

Sig.—One or two teaspoonfuls to be taken in a cup of tea.

Avoid drastic aperients, and if a stronger effect is required, two doses of three grains of calomel will suffice. In reference to diet, it is only in periods of exacerbation that you are obliged to fall back upon the severe diet of the acute catarrh. In average cases it is sufficient to avoid heavy meals and indigestible food, and the patient should eat often, and little at a time, for in neurosis there is no question of limiting the supply of food. On the contrary, nourishment must be forced upon the patient, without in the least regarding the desires of his "capricious" stomach. He must be fed, whether hungry or not. An explicit bill of fare should be given him, which his physician must have sufficient authority to enforce. In his power of enforcing—through watchful nurses, by moral influence, by overbearing authority—lies the secret of the success of our large sanatoriums. All the patient's symptoms improve as he gains flesh: overfeeding alone is not enough for this end; absolute rest, bodily and mental, is required in addition with isolation and the judicious use of electricity.

Hayem insists upon the importance of rest in the treatment of chlorosis; one of the indications for rest in chlorotic patients is, that when they are allowed to walk around, the blood-pigment in the urine is very much increased over the amount present when they are at rest. Repose also relieves the neurasthenia which is a frequent accompaniment of chlorosis, and admits of the patient leaving off her corset, thus relieving the pressure upon the stomach. The other important points in treatment are a careful diet, which, Hayem believes, should at first consist of milk, soups, and raw meat, gradually increased until after four or five weeks ordinary diet may be used; and, as a third indication, he mentions iron in a readily assimilable form. The preparation which he prefers is ferrous oxalate, while he has not much to say in favor of the carbonate of iron, for it takes a longer time to cure the disease, requiring larger and, consequently, more unpleasant and more irritating doses.

Edgcombe in investigating the effects of exercise upon hemoglobin, finds that normally there is a fall in the day and a rise during the night in the individual value of the corpuscle, showing some daily destruction and regeneration of hemoglobin; this is increased by active exercise, the destruction somewhat more than the production. Massage decreases the volume of the blood, but has no effect upon the amount of hemoglobin; rest reduces the amount of destruction of hemoglobin. These observations were made upon a healthy subject, and do not, therefore, show what actually takes place in anemia, but they indicate that rest may in the future be definitely proved useful in building up hemoglobin.

The question of bicycling for women does not claim

as much attention as it did but it is practical still. Fauquez concludes that bicycle-riding may be recommended in cases in which there is absolute integrity of the genital organs, for anemic and chloroanemic persons, for dyspeptics, for neurasthenics, for sterile and obese persons, for young girls in whom menstruation is not normally established, and for women who have suffered from troubles dependent upon the menopause. In cases of diseases of the uterus or the ovary this exercise may be advised as follows: 1. In uterine congestion. 2. In amenorrhea or suppression of menstruation connected with arrest of development of the ovaries and of the uterus, with anemia, chloroanemia, digestive troubles, neurasthenia, and chronic affections; with troubles resulting from physical or mental shock, cold, etc. 3. In dysmenorrhea connected with nervous troubles. 4. In congestive dysmenorrhea due to any cause capable of provoking congestion in the uterus and the ovary, such as physical or mental shock. 5. In deviation of the menses or supplementary menstruation. 6. In fibrous tumors when the hemorrhagic stage has passed. Bicycle-riding may be permitted in cases of mechanical dysmenorrhea due to obstruction to the discharge of blood, either congenital or acquired and in membranous dysmenorrhea; in cases in which the uterus becomes displaced; in cases of chronic metritis connected with arrest of involution of the uterus after confinement or abortion, if it is painful and recovery has begun. In this case, however, the exercise must be taken in moderation; in cases of leucorrhea, in anemic and chloroanemic persons, and in cases in which the general condition is weak. Bicycle-riding must be absolutely proscribed as follows: 1. In amenorrhea connected with pulmonary phthisis, cancerous affections, diabetes, organic diseases of the heart, and diseases of the kidneys, such as albuminuria. 2. In cases of metrorrhagia or excessive menstruation. 3. In cases of inflammation of the uterus and its adnexa, acute metritis, chronic painful metritis, hemorrhagic endometritis, purulent endometritis, leucorrhea, connected with an inflammatory condition of the intrauterine mucous membrane, inflammation of the adnexa, salpingitis, oophoritis, salpingoophoritis, perimetritis, pelvic cellulitis, and pelvic abscesses. 4. In cases of pelvic hematocoele and of fibrous tumors during the hemorrhagic stage. 5. In cases of inflammation of the vulva or vagina.

Kunkel investigated the question of the absorption of iron by giving young dogs a pure milk-diet, which contains but little iron, and determining the amount of iron in their blood. When iron was added to their nourishment he found that if it were in inorganic form the amount of iron in the blood increased, while when administered in organic compounds the amount in the blood even decreased. In the absorption of iron in the stomach and duodenum, it was readily determined that this takes place in the duodenum, but any reaction in the gastric epithelium was only obtained when the whole organ was immediately put in Hall's solution, in order to bring out certain small areas of dark color which were otherwise invisible. These areas showed an iron-reaction in the epithelium, and since this reaction was absent from the cells of animals which had not taken iron, as well as from those of a stomach into the cavity of which iron had been introduced after death, Hari concludes that the stomach undoubtedly absorbs iron, though to a lesser degree than does the duodenum.

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A man's power is hooped in by a necessity which, by many experiments he touches on every side, until he learns its arc.—Emerson.

THE PROBLEM OF FOOD ADULTERATION.

NO honest person denies the necessity for proper laws for preventing both the manufacture and the sale of foods which are either unwholesome or falsely labeled. Such legislation is not new; even the ancient Greeks had such laws while the Romans regulated commerce in agricultural products. The early common English law made it an indictable offense to sell foodstuffs in which unwholesome ingredients had been placed—as far back as 1266, the statute of 51 Henry III prohibited the sale of corrupt wine and unwholesome flesh.

It is, however, since 1875 that England in passing what is known as the Food and Drug Act brought into form the many fragmentary acts and regulations; at this time our own country had no food laws; only a state here and there had occasional laws, such as Pennsylvania, which had declared in 1860 that the selling of unwholesome food, drink, or drugs in liquor were prohibited, carrying out the declaration of the English common law.

This action by England was followed by our national Board of Trade which offered a prize for the best essay on food and drug adulteration which should include the draft of an act "designed to prevent injurious adulteration and to regulate the sale of food without imposing unnecessary burdens upon commerce." This prize was awarded five years later to Wigner, an English scientist. As a result of Wigner's essay, a bill for pure food was offered in Congress and in various state legislatures. These laws are now attacked by the attorneys of the various defendants in pure food cases as absurd, misleading and impossible. Recently Mr. Smithers, attorney for several accused firms, read a paper before the Philadelphia County Medical Society in which he attacks the local State Food Commission, which has been un-

usually active the past two years. His contentions are interesting as showing the negative side of the question. He claims that the abuses under the act of legislature which created the commission in 1895 are tremendous. He argues, in the first place, that under police power all pure food laws are limited to two purposes: (1) Preservation of public health, and (2) protection against frauds and deceptions. He claims that these two purposes fall within the police power and no further law or commission is needed or constitutional. Then he criticizes the Pennsylvania Pure Food Bill, which in short terms is as follows:

It forbids all persons to manufacture, sell or offer for sale any article of food which is adulterated, defines the word "food" as including "all articles of food or drink by man, whether simple, mixed or compound," and says an article shall be deemed adulterated in seven cases: "(1) If any substance or substances have been mixed with it so as to lower or depreciate or injuriously affect its quality, strength or purity. (2) If an inferior or cheaper substance or substances have been substituted wholly or in part for it. (3) If any valuable or necessary constituent or ingredient has been wholly or in part extracted from it. (4) If it is an imitation of or is sold under the name of another article. (5) If it consists wholly or in part of a diseased, decomposed, putrid, infected, tainted or rotten animal or vegetable substance or article, whether manufactured or not,—or in case of milk if it is the produce of a diseased animal. (6) If it is colored, coated, polished, or powdered, whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is. (7) If it contains any added substance or ingredient which is poisonous or injurious to health: *Provided*, that the provisions of this act shall not apply to mixtures of compounds, recognized as ordinary articles or ingredients or articles of food, if each and every package sold or offered for sale be distinctly labelled as mixtures or compounds and are not injurious to health."

Section 4 provides that the manufacturer or the seller must furnish samples for analysis if the value of the goods be tendered.

Section 5 reads: "Whoever refuses to comply, upon demand, with the requirements of section four, and whoever violates any of the provisions of this act shall be guilty of a misdemeanor and upon conviction shall be fined not exceeding one hundred nor less than fifty dollars, or imprisonment not exceeding ninety nor less than thirty days, or both, and any person found guilty of manufacturing, offering for sale, or selling any article of food under the provisions of this act shall be adjudged to pay, in addition to the penalties herein provided for, all necessary costs and expenses incurred in inspecting and analyzing such adulterated articles of which said person may have been found guilty of manufacturing, selling or offering for sale."

Mr. Smithers claims that this law is absurd, for example: "If a manufacturer add to maple syrup any quantity whatsoever of refined cane sugar in order to get the clearness and pleasant taste required for commercial purposes, no matter if he announce the fact by label and thus proclaim just what he is selling, he is guilty of a crime because he has mixed in a substance which affects the purity of the maple syrup and that the act says is an adulteration. The same illustration will serve as to definition number two. A case of maple syrup was recently tried in a central county and the dealer was convicted under this section. As to number three, a manufacturer who extracts sufficient fat from cacao bean to make a marketable cocoa can be convicted of selling an adulterated article because, in the language of the law, a valuable constituent had been extracted from it. No matter if the label on the goods tells the whole story, the result is the same, although the merchant is not deceiving the purchaser and is selling nothing unwholesome. Under section four an illustration can be used which, while it may be extreme, will serve to show the needless interference with commerce for which this law can be used. Suppose a baker desires a *papier maché* imitation of a loaf of bread for display in his window. The manufacturer who sells him such an article can be convicted because bread is an article of food and it is a crime to sell any imitation thereof. Clearly the purchaser would not be deceived nor the public health affected, yet there is the law and the Food Commissioner does not have to show that the article itself is intended to be eaten. According to section five a produce merchant can be held guilty of a violation of the act if a customer find the least decomposition at the core of one potato or other vegetable in a bushel sold, and likewise a butcher cannot sell any spoiled meat to be given a dog or other animal, for in both instances the article would be in part or wholly of a decomposed or tainted animal or vegetable substance. Under number six a bottle of catsup colored with cochineal or powdered red pepper pods cannot be sold, although such preparation has been a recognized commodity for years and is clearly labelled 'artificially colored.' The label will not save the merchant. He can be convicted because the color makes the article appear better than it really is as the definition puts it. The Food Commissioner has declared that no colored catsup can be sold, and some of the county courts have sustained him." Mr. Smithers makes the further serious charge, although not very definitely; that the Food Commission is used as a blackmailing scheme to extort money from honest merchants. However, he cites no proof of this unsupported contention, so this point can be dismissed as the plea of the attorney anxious to prove his point. He advises the abolishment of the office of Dairy and Food Commissioner and the establishment of county and municipal food inspectors. He suggests the following features:

(1) That no article be considered food or drink unless sold to be used as such by man. (2) That no unwholesome food or drink be manufactured or sold. (3) That all commodities be truthfully labelled whether pure or mixed. (4) That all mixed articles be labelled with list of ingredients. (5) That all goods artificially colored or preserved be labelled so specifically. (6) That violation of any of these provisions be punished with fine and imprisonment after notice that any particular article has been found to be unlawful. (7) That in cases in which the goods have been manufactured out of the State and have been received for sale in due course of business only a fine shall be imposed for the first offense. (8) That all fines and costs, including reasonable expenses for analyses and tests, be paid into the treasury of the particular county or municipality. (9) That all samples be stamped for identification in presence of the seller, and a portion thereof be left in his possession or tendered to him at the same time.

In reply to this clever argument of Mr. Smithers, it is but fair to say that he is not supported by any sentiment of the medical profession or the community. Food adulteration is a serious problem of modern times and it is a silly waste of words to endeavor to relegate its restriction to the police or the individual city or county. If this is done, food adulteration will continue to flourish. No one can read the reports of Dr. Wiley or Coley without feeling that this means of making money is the most contemptible and serious of crimes against the community at large. If the inspectors use their powers for blackmail, the present courts offer sufficient protection as any good lawyer must allow.

THE ADEQUATE CAUSE NOT NECESSARILY SUFFICIENT.

THERE is a rule of logic frequently applied in legal arguments, that, having found an adequate cause for an effect, it is not necessary to search for other explanations but that they are probably, although not absolutely excluded. This rule, more or less definitely expressed or implied, is often followed by physicians in making a diagnosis.

However satisfactory the principle enunciated may be in proving criminal motive, in excluding a criminal cause of death when an accidental cause is suggested by circumstantial evidence and in legal practice generally, we wish to caution against applying this comfortable and easy rule in medicine.

The fact that a patient has one disease sufficient to explain his symptoms, or that one cause sufficient to produce a given disease has been demonstrated, does not by any means exclude the presence of an independent disease, or the operation of an additional cause.

As an extreme instance of the simultaneous presence of independent diseases, we recollect a patient seen

in 1888, who contracted, at one exposure, so far as the history could be relied upon, syphilis, soft chancre and gonorrhea. This patient was a man and it is conceivable that a woman might contract not only these three venereal diseases at once, but also what some have termed the fourth venereal disease—pregnancy.

The concurrence of two infectious fevers is not especially common and yet not especially rare, and a cynic has defined an isolation pavilion as a place whither a patient with one germ disease is sent in order to contract another. In some instances, there seems to be a distinct opposition between the toxins of one disease and the germs of another, as for instance, between erysipelas and cancer, allowing that the latter is a germ disease. However, the present opinion regarding cancer seems to be that there is no germ other than the cancer cell itself, and one German investigator has gone so far as to suggest that cancer cells are really living animal cells introduced in raw eggs. This astonishing theory is supported, so far as such support goes, by precipitin reactions. Somewhat along the line of opposition between various diseases, we may mention a patient whose urine, at various times from 1894 to 1899, presented evidence of chronic diffuse nephritis. In 1900, he had a violent attack of phlegmonous erysipelas and was apparently kept alive only by hypodermics of strychnine. During his recovery, the urine was examined to learn how much could still be expected of the kidneys, and it was found perfectly normal, and it has so remained up to December, 1904.

When the ordinary infectious fevers occur at the same time, they apparently do not conflict except in the purely clinical sense that symptoms may be so intermingled as to render diagnosis difficult.

In internal medicine, we note that certain diseases pave the way for others, as diabetes for tuberculosis—or possibly the original pancreatic lesion is tuberculous. In other cases, without anything of the nature of antitoxic or antibacterial action, one disease seems actually to prevent another. Thus, the metabolic products of gout render the lodgment of tubercle bacilli almost impossible, while the hyperemia due to valvular disease of the heart is commonly considered to render at least the lungs unsuited for the development of the same. But it may be that the toxins which cause valvular endocarditis are the true prophylactic against tuberculosis. Again, two diseases, distinct in location and in nomenclature, may be components of the same general process or one may be directly due to the other. Thus, cardiac hypertrophy and valvular defects, chronic interstitial nephritis and various plainly secondary lesions, may be considered as parts of a general sclerotic tendency. The chronic gastric catarrh that often attends hepatic sclerosis is a direct and almost mechanic sequela whose duration coincides with that of the initial disease.

It is needless to multiply examples of the mutual relations of disease, but when there is nothing in the nature of one disease to produce or to prevent another, we must still remember the possibility of their joint occurrence. Indeed, in the mathematic sense, it is as easy to compute the occurrence of such joint involvements as to predict the chances of throwing three sixes. Thus if disease A comprises $1/a$ of all diseases and disease B, $1/b$ of all, disease A will complicate $1/a$ of all cases of B and vice versa and this joint occurrence will occur in $1/ab$ of all diseases. And if the incidence thus computed for any large series of average experiences, varies significantly from the theoretic incidence, either our premises are wrong as to the relative frequency of the two diseases, or else there is a mutual attraction or repulsion between the individual diseases, or else the experience is modified by some peculiar factor as race, clientele, climate, etc.

We recall a case of alcoholic gastritis and hepatic sclerosis in which the question of cancer was raised by the family, simply because the laity always think of cancer in any serious internal ailment. The case was fully explained by the alcoholic theory of a joint hepatic sclerosis and gastric catarrh, and there was absolutely no sign of cancer except the common symptoms of various depressing diseases of the alimentary organs. Yet necropsy showed multiple small cancers of the liver which could not have been palpated and which probably had not affected enough of the parenchyma to produce signs of any kind, supposing the other conditions to have been absent.

Any general practitioner must have seen cases which present at different times, many entirely unrelated diseases, and some patients, by mere chance, illustrate the most unfortunate succession of evils. We must not forget the possibility of such chance operating at the same time.

Some specialists are prone to regard diseases locating in organs outside of their domain as purely reflex or minor complications. The worst offenders in this are ophthalmologists and gynecologists though, from personal observation, we know that the majority of these specialists recognize that serious trouble may exist outside of their specialty. Some ophthalmologists have made the claim that sick headache is always due to eye-strain and ignore many grave abdominal and pelvic diseases, simply because the patient has a refractive error. Again, we recollect a gynecologist who promised absolute cure by replacing a retroverted uterus, though the patient also had a movable kidney and a dilated stomach. On the other hand, we recall a woman who had a local stomach trouble and also a large uterine fibroid. The latter apparently produced no immediate symptoms, but certainly could not fairly be ignored from the standpoint of her ultimate welfare.

The general principle enunciated applies to etiology as well as to diagnosis, and hence, is of practical importance in regard to prophylaxis and treatment. For example, the fact that a person has tuberculous parents, by no means indicates that he inherits tuberculosis or even a necessary tendency to the same. He may have no real hereditary tendency whatever, but may yield to infection on account of purely transient and avoidable reduction of general resisting powers coupled with exposure to any source of infection. So, too, the veriest rake may contract syphilis from a towel, or an infected razor. To take an entirely different kind of an example, the prevailing notion that rheumatism is the only common cause of valvular disease, may cause us to refer a heart lesion to some painful affection of childhood which might or might not have been rheumatic and to overlook its real origin in an attack of typhoid or diphtheria. Or, again, hepatic sclerosis is often attributed to a very moderate indulgence in alcoholic beverages, overlooking the fact that it is not at all rare in total abstainers.

Until quite recently, it was taught that there existed a kind of sympathy between the stomach and the tongue, so that, by looking at the latter, we could judge the condition of the former in a very direct way. At present we know that not even a bacterial growth on the tongue indicates the colonization of the same micro-organisms in the stomach and that the popular conception of a catarrh that begins in the tongue and pharynx and extends all the way through the stomach, is so greatly exaggerated as to be misleading, although undoubtedly containing a germ of truth.

We have at present under observation a case of thyroid failure coincident with hemi-paresis, and while it is possible that the two conditions may be closely related, the probability is that they have in common only the very general condition of senile degeneration, by way of the blood vessels.

Chloasma of the chest has been considered to be genuinely, though indirectly, dependent upon pulmonary tuberculosis, to such a degree as to have a diagnostic value in a suggestive way, but modern critical study throws considerable doubt even upon the supposed frequency of the association of these distinct affections.

An editorial is not the place for a scientific medical treatise, and reasonable considerations of space and time forbid anything more than passing suggestions. Thus, we can only throw out the general warning not to abate one's vigilance simply because one disease has been positively established, nor to cease to seek for causes merely because the first one that suggests itself seems to be satisfactory.

Bison beef is now considered a delicacy among English epicures; it is a compromise between buffalo meat and beef, the result of cross-breeding.

THE PUBLIC HEALTH.

ON the evening of January 16, '04, there was a memorable meeting of the *New York County Branch of the State Medical Association*, when the Health of the Nation, of the State, of the City, and of the Port of New York were discussed by Dr. Walter Wyman, Surgeon General of the Public Health and United States Marine Hospital Service, Dr. Daniel Lewis, Commissioner of Health of New York State; and Dr. Thomas Darlington, Commissioner of Health of New York City. Dr. Alvah H. Doty, Health Officer of the Port of New York, contributed an able paper, which in his unavoidable absence, was excellently read by Dr. Dennison. Concerning Dr. Wyman, it was well said that he should have been greeted as The Secretary of Public Health of the United States. Among all the grotesqueness of modern civilization in this country, it must be evident to the reflecting citizen that there is none more absurd than the absence of such an officer in the National Cabinet.

The scope of the activities of Dr. Wyman's office is essentially inclusive of all civilization; for instance, a case of yellow fever in Santiago, a case of Asiatic cholera occurring in the Mediterranean, one of Bubonic Plague in the Orient, becomes practically known within the minute of its discovery in Washington. "The nations of the earth," stated Dr. Wyman, "are more nearly related than ever before in the world's history. All the world has become one neighborhood, as far as relates to distances. In no manner has this been better shown than in the warfare against contagion. International congresses, conferences and conventions are frequently bringing the nations together as one family in the struggle against these foes of mankind." Here is a common ground upon which all nations can meet—an object infinitely worthier the expenditure of energy and money than war and armaments. And Dr. Wyman sets forth sentiments expressed by M. Casimir Périer to the effect that the struggle with diseases, especially of the contagious sort, is intimately bound up with the solution of the most complex economic problems. Dr. Wyman declares that the principles upon which such international conventions must be founded, must originate in scientific investigations and in laboratory work. Here science must be the pillar of fire that will light the way. And hand in hand with science must go religion, that nations may develop conscience and a sense of justice toward one another, to the end that the dreadful infections which decimate mankind may be effectively coped with.

In order to obtain practical results along such lines as these good laws and effective administration are essential. Among details with regard to the Marine Hospital Service, Dr. Wyman states that each state and territory has a Health Department which co-operates with the Surgeon General to the end that knowledge of hy-

gienic principles become widely diffused. The measures he sets forth are not ideal—they are practical. It is a logical deduction that bad public sanitation denotes a slothful and comparatively uncivilized community. Good sanitation is distinctly indicative of human progress. Dr. Wyman dwelt also upon the popular diffusion of sanitary knowledge. In local politics the electorate should be taught and influenced to vote for enlightened candidates; and the latter should have sufficient conscience to be uninfluenced by mercenary considerations in dealing with questions of the health of the community. He instanced the excellent work of labor unions with regard to sanitation. The American Federation of Labor, with a membership of some 2,000,000, has interested itself energetically in the tuberculosis situation; has set itself to finding out why, while parks, monuments and all other very good things are being constructed, less favored localities, such as tenement-house districts, should not also receive due attention. Tenements, as well as the houses of the rich, should be sanitary. Indeed, the rich can take care of themselves in this regard; on which account the dwellings of the poor should receive *first consideration*. There is no reason worth considering why we should have slums; "*we should have slum-less cities.*" To this end bad drainage, bad air-space, lack of sunlight and all such factors should be eliminated.

Descartes declared that if the race is ever to attain perfection is must be by means of the medical sciences. In such spirit as this Dr. Wyman closed his excellent paper. If the health of the individual is vouchsafed, if his organism be made to meet adequately the hard facts of life, if he be made strong to work for and maintain his family, the community in which he lives must inevitably be bettered by the strength vouchsafed him. And if thus strengthened, he have virility beyond these physical needs, he may develop his psychic capabilities with the result that his own happiness, and that of his familiars and of his own community will be greatly enhanced.

Dr. Lewis wished to emphasize that there is not now, nor has there been for four years past, a New York State Board of Health, despite the oft-repeated asseverations of the lay press. There used to be a Health Board, with a secretary; the former served without salary and as often happens with such boards, its deliberations were perfunctory and ineffective. The secretary was paid and very much of the work of the board was left for him to do. There is now a Commissioner of Health, whose office is in Albany; and he is the man who has all the duties and all the responsibilities of the former board. And this man is the definite mark whenever any blame is forthcoming. Dr. Lewis is at present the Commissioner. Among the many activities associated with this office is a cancer laboratory at Buffalo; an antitoxin laboratory for tetanus and diphtheria, which

supplies (free to the impecunious) these serums to some 1,400 stations throughout the state; and pathological laboratories where examinations are made for release of quarantine, for widol reactions, and especially for the examination of potable waters. Much of the chemical work is now done by the former agricultural department of the state. The Commissioner has local representatives (health officers) in some 1,400 towns. Their terms are fixed for four years; they are nominated to the Commissioner, who appoints them; they cannot be removed by local boards, nor otherwise than for cause and upon trial, and not until after the Commissioner has approved the findings. Those who have to do with rural politics will understand how essential it is to have a faithful and honest health officer protected in this way. There are now excellent sewers in all parts of the state; largely for the reason that the Commissioner is empowered to engage consulting engineers who examine into sewerage plans in villages and towns, before they can be constructed. The Commissioner also now sees to it that there shall be no sewerage emptied into the streams and rivulets of the state; certainly many cases of contagious diseases are obviated by the enforcement of this measure.

The scope of activities of the Department of Health of New York City is generally not adequately comprehended. The Commissioner, Dr. Darlington, is the President of the Board, of which the Commissioner of the Police and the Health Officer of the Port are ex-officio members. The General Medical Officer is Dr. Herman M. Biggs, whose contributions to Preventive Medicine are of world-wide appreciation and adoption. Its sanitary bureau has a division of inspection, which has charge of mercantile, meat, fruit, fish, lodging house and offensive trades inspections; a division of contagious disease, which engages diagnosticians, vaccinators, district inspectors, oculists, medical school inspectors, a "summer corps" of physicians, district and school trained nurses, disinfectors, veterinarians, etc.; a division of chemistry, which makes water, food and general analyses, and food and milk inspections; a bacteriological laboratory for diagnosis; medical inspectors, who administer antitoxin, intubate, supervise tuberculosis conditions, and the like, a laboratory for the production of vaccine and a laboratory for bacteriological research and for the production of antitoxins. The Department has a reception hospital for contagious diseases; the Willard Parker Hospital, the Kingston Avenue Hospital in Brooklyn, a disinfecting station and an ambulance stable. The Police Department furnishes the "Health Squad" officers who have the red-cross badge upon their sleeves, and whose business it is to enforce the Health Department's orders. We cannot here touch upon the vast clerical work done in the Health Department, nor upon the gratuitous work done by its Honorary Medical Advisers, who are eminent physicians.

THE CRIPPLING OF THE LEFT HAND.

CUSTOM makes laws harder to break than those of the land in which we may happen to live.

We little realize the assertion until we see this attempt made. It frequently happens that these laws are founded on experience, on mature judgment, on good sense, but occasionally they are founded on old superstitions which in other forms have passed away. Among the unfortunate customs that still linger is the habit of crippling the left hand.

If a child in shaking hands offers the left, the horrified mother or nurse at once corrects the blunder and apologizes for it to the bystanders. She does not know why she does this beyond the fact that "it is the custom;" she does not know that in mediæval times the right hand was the "dextrous" hand, the hand of good faith, while the left was the "sinister" hand, the hand of bad faith. We have crystallized these beliefs in our present interpretation of these words; if we are "dextrous," we are doing things in a right-handed way, while the mildest meaning given to "sinister" is "unfortunate or awkward." So the child is crippled in its left hand to conform to a custom which has been discarded and forgotten.

This custom is all the more senseless because in the researches of modern science it is well established that there is no such thing as a genuine ambidextrous person. It will be found that such fortunate people were originally left-handed, and have been taught the use of the other hand. They were fortunate in being born left handed, for then they stood a chance of being properly educated. An examination of the early history of these ambidexters proves that as a rule not only were they originally left handed, but that they generally retain the preference for this hand. The case of Dr. D. Hayes Agnew, the famous surgeon, is an illustration in point; he had the reputation of being ambidextrous, but in a discussion on its genuineness after his death, the decision was left to the artist who had painted his picture while operating. This artist, so well known for the photographic character of his work as to be called "the Zola of American Art," stated at once that he had noticed Dr. Agnew's preference for his left hand, and in painting the scene, placed the scalpel in the surgeon's left hand.

It is strange that we become so hide-bound in habit that the significance of this loss is unnoticed. Dr. Thomas Dwight, in endeavoring to determine the reason for right-handedness in a recent magazine article, states: "The characteristics of an educated left-handed person which would first attract attention are more likely to come from an uncommon ability to use the left hand than from any deficiency in the right. Thus a billiard player who makes a shot with his left hand as well as with his right, is called ambidextrous; but the fact is, that his right hand has been educated as the

left hand of most people have not. The most perfect ambidexter ever known, whose skill in writing and drawing with either hand is proverbial, has declared that he cannot drive a nail, carve, or whittle with his right hand."

There has been no note of protest from the scientists working in this field as to the waste of human energy; Dwight dismisses the subject with the thought that the ambidextrous man has "his right hand educated as the left hand of most people are not." It is well that people are right handed; for one side must be superior to the other. This is true even of plant life, but this is no reason for crippling the left hand, however; if some one would propose to tie the left hand up in a sling from birth, we could see the value of the custom; it would be scarcely more idiotic than our present habit in the matter.

Think for a moment of the advantage of being able to use each hand with nearly equal facility. On the side of the man it serves to rest both mind and body, while from the standpoint of society it increases the individual's power of producing, and reduces his loss in case of accident. Our mariners have adopted the "twin screw;" Nature starts each man as well provided. To those who use their hands to make their daily bread this matter is of great importance, from the stenographer anxious to avoid scrivener's palsy to the tired seamstress who cannot even cut a piece of material with the scissors in her left hand. Many children are being taught to use both hands, and already it is a source of great comfort to them. Let the reader resolve to continue the good work from this time on; he will be quickly repaid by the gratitude of the children as soon as they are old enough to realize the priceless gift.

HOSPITALS FOR TUBERCULOUS CHILDREN.

THE French Government is entitled to be considered the pioneer in the establishment of hospitals for tuberculous and scrofulous children. At Berck-sur-mer, near Calais, at Hendaye on the coast near Spain and in other places are these benignant institutions, where many a poor child, who must otherwise have succumbed to its tuberculous lesion, is vouchsafed a virile mind and body and grows up to be a grateful and valuable citizen.

Somewhat more than a year ago, Mr. J. S. Ward, Jr., visited these institutions and had photographs and descriptive data taken, which he submitted on his return to the New York Association for Improving the Condition of the Poor; whereupon this Association established for experimental purposes a tent hospital for tuberculous children of this city at Sea Breeze, its summer home on Coney Island. The results here achieved were admirably set forth before the New York Academy of Medicine.

When the winter of 1904-5 came on, rather than re-

turn these children to over-crowded tenements, where their tuberculosis must very likely have returned, they were transferred to a portion of the permanent structure at Sea Breeze. Here, one very wintry day, Dr. J. W. Brannan, of New York, visited them. He came upon a number playing on the snow. Mitts were dangling by strings about their necks, but they were not in use. While chatting with them they told him they had to go into the building to get their temperatures taken. He went in with them. The windows were wide open. He wanted to keep on his hat; but as no one else was covered, he removed it. His hands were gloved. He took his gloves off. The children affectionately took his hands, one on each side. They said his hands were cold; he found theirs to be warm. Then he felt the hands of others, and made the same observation. These windows were open wide *throughout the twenty-four hours*; except for half an hour mornings and evenings, when the children dressed and undressed. These children were tuberculous, but, except for the surgical manifestations one would never have imagined it. Dr. Brannan had not in his professional life seen curative results comparable to these. They were rosy-cheeked children, with one exception, a white-faced child. "She came yesterday," was the explanation made by one of her companions. In general terms the surgical lesions progressed wonderfully toward complete recovery. Statements were also made by Dr. Homer Gibney and other of Dr. Brannan's colleagues to the same effect.

Flies and Tuberculosis.—Dr. F. T. Lord has contributed to the *Boston Medical and Surgical Journal* (Dec. 15, 1904) a very interesting paper—from a practical viewpoint—with the above title. He finds that flies may ingest tubercular sputum and excrete tubercle bacilli, the virulence of which may last for at least a fortnight. Again, he finds that the danger of human infection from tubercular fly specks is by the ingestion of the specks in food. Here is another reason for the consideration of the question of ingestion tuberculosis, a question, which, like Banquo's ghost, will not down. Dr. Lord has found that spontaneous liberation of tubercle bacilli from fly specks is unlikely, but if mechanically disturbed, infection of the surrounding air may occur.

Tubercular material (from sputum pus from discharging sinuses, fecal matter from patients with intestinal lesions, etc.) should, therefore, be carefully protected from flies, lest they act as discriminators of the bacillus of Koch. During the fly season, greater attention should be paid to the screening of rooms and hospital wards containing tuberculosis patients, and laboratories where tubercular material is carried. As these precautions would not eliminate fly infection by patients at large, food stuffs should be protected from flies who may already have ingested tubercular material.

Dr. Lord's experiments are extremely scientific and convincing. His idea, as he states, is by no means new. Work has already been done, but Dr. Lord has quite conclusively demonstrated the possible menace which lies in this direction.

THE MEDICAL INSPECTION OF SCHOOLS.

THE objection to medical inspection is paternalism, but there is no real weight in this cry, for it is simply a cry. It is the chronic objection to any social progress; it was heard when sweatshop laws were suggested; it will ever be heard while men are asleep to the fact that the world must grow better.

If it is the object of the American public school system to develop the best type of citizens, it must be a well-developed personality, morally, mentally and physically. There is no doubt that the state owes two duties to its children: education and the preservation of health; and the latter duty is as plain as the first. It is unjust to compel attendance in school, if there is an absence of good medical regulations governing the system. Otherwise the school frequently becomes a focus for spreading disease. Curiously enough it is harder to enforce medical inspection or impress its value on the smaller community, for here the sense of individualism is more developed.

There are many arguments in favor of medical inspection, one of the most potent being the educational benefit to the public at large, for in this way the value of such a process is impressed on parents in particular and the children grow up to accept it.

Medical inspection to be valuable must have certain duties, rights and responsibilities; each large city has developed its own plan of procedure. In Chicago, inspection owes its origin to an outbreak of diphtheria in one of the larger schools. Within four weeks a system of medical inspection was started, largely by the efforts of Dr. W. S. Christopher. Here, while the teacher was one channel to attract attention to suspicious cases, other agencies were introduced. Thus, when pupils were absent for four consecutive days, they were excluded until seen by the medical inspector. This rule helped the detection of the milder forms of contagious disease. Again in Chicago, children are not admitted upon certificate of the attending physician, for such certificates had been found utterly worthless; unfortunately the Chicagoan physician does not seem to dare to deny his patients aught.

These inspectors are under the control of the board of education rather than the board of health, for it was found that the board of health only reported one seventh of the cases of contagious diseases in the public schools.

In the city of New York in 1900, there were 140,000 pupils examined in ten months of which 7,606 were excluded or 5.41 per cent. of the number examined; in Chicago there were examined in the same period 115,000 pupils of whom 7,600 were excluded. This shows that there is a necessity for such inspection constant and real. In Denver, a card catalogue is used for keeping records of the items of physical conditions thought necessary for inspection; each pupil has his

own card and it goes with him while he remains in the public school system. This card contains all available data, such as date of vaccination, bodily defects, etc. Eight expert opticians also work for the Denver children. There has been an adequate system in Boston for a number of years and here the inspection is rigid, the inspectors visiting the schools daily. The inspectors have full authority; they may send pupils home, visit their residences and order the pupils to be kept isolated if deemed necessary. In Philadelphia, the system has been developed until there are fifty well-paid physicians constantly at work.

Unfortunately many parents fail to understand the object intended in this medical inspection and from time to time a patron of a school will refuse to allow his child to be subjected to an examination by the medical inspector. Suits have been brought in the courts to compel boards of education to receive the child upon the physician's certificate but so far the courts have upheld the boards of education in requiring independent inspection.

Taine's Ill-Health.—George M. Gould gives an interesting sketch of this brilliant French litterateur. His troubles began at the age of twenty-one, and by means of excerpts from his letters and from his biographers' notes a sketch of his life is given from that period till the age of thirty-six. It is made to read like a history of unrelieved eyestrain. The patient suffered greatly with headache, insomnia, depression, limited power of working, and inability to use the eyes. With all this suffering, however, his letters often speak of being in "good health" during the very periods when he was temporarily suffering from migraine. The writer states that such an experience is a well-known clinical fact. He states that in the reflexes of eyestrain the clinical histories are likely to vary astonishingly according to the organs that bear the brunt of the derouted nerve discharges. But even in the most aberrant types, there are certain facts and phases that are common to all. The suffering, whatever its form, is directly consequent upon the use of the eyes. It increases in intensity with the lessening of the accommodative power. The only way of stopping the suffering is by nonuse of the eyes. Depression is always present. As the disease is functional and not organic, the essential health and vitality are not, at least, for a long time, if ever, irremediably affected. A late photograph of Taine (he lived till 1893, dying at sixty-four) shows that toward the end of life there was paretic ptosis or drooping of the lids. The right eye is plainly strabismic, or turned in. The writer concludes by calling attention to the ease with which the entire list of evils suffered by Taine can be prevented, as he thinks, in modern patients.

The Disinfection of Buildings in which Consumptives have died.—The Health Commission of Buffalo, N. Y., has been authorized to employ such assistance as may be necessary to this end. If such disinfection were universally practiced, the deathrate from consumption would, we believe, be decreased at least one-half. For tuberculosis is essentially a house disease, and thrives best in unsanitary dwellings. Moreover, municipal health authorities should register not only the names of consumptives, but also the houses in which they live.

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Manual of Operative Surgery.—By John Fairbairn Binnie, A.M., M.D., (Aberdeen) Professor of Surgery, Kansas City Medical College, Fellow of the American Surgical Association, etc. 12mo, pp. 644. With 559 illustrations, a number of which are printed in colors. Price \$3.00. P. Blackiston's Son & Co., Philadelphia, 1905.

The author of this volume has omitted as far as possible all description of those procedures which are ordinarily thoroughly given in the usual text-books on general surgery, so that we find here no reference to such subjects as amputations and ligations. The aim has been to be practical and to confine the work to the living subject. In reality the book supplements the larger works on surgery, and fills an important space. The text is well written, excellently illustrated, and will be found a most useful manual by the surgeon.

Text-Book of Insanity Based on Clinical Observations.—For Practitioners and Students of Medicine. By Dr. R. von Krafft-Ebing, late Professor of Psychiatry and Nervous Diseases in the University of Vienna. Authorized Translation from the Latest German Edition by Charles Gilbert Chaddock, M.D., Professor of Diseases of the Nervous System in the Marion-Sims-Beaumont College of Medicine, Medical Department of St. Louis University, St. Louis, Mo., etc. With an introduction by Frederick Peterson, M.D., President of the New York State Commission in Lunacy. Pages xvi-638. Royal octavo. Cloth, \$4.00, net; half-russia, \$5.00, net. F. A. Davis Co., Philadelphia, 1905.

The distinguished author follows the tradition of preceding editions, in adapting his work to practical purposes, for the benefit of the general practitioner, as well as the student, in the difficult domain of psychiatric study and science. The text, which has been revised to date, is expressed in clear, comprehensible terms; theories and hypotheses are avoided as far as possible, while the more positive points of the subject are emphasized.

The book is based upon the author's thirty-three years' experience with the insane, and presents disease-pictures, as he has seen them.

The high standing of this eminent author in his specialty, is sufficient recommendation of his great work to our readers.

The Surgical Diseases of the Genito-Urinary Tract, Venereal and Sexual Diseases.—A Text-book for Students and Practitioners. By G. Frank Lydston, M.D., Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Medical Department of the State University of Illinois (the College of Physicians and Surgeons); Professor of Criminal Anthropology in the Kent College of Law; Surgeon-in-Chief of the Genito-Urinary Department of the West-Side Dispensary; Fellow of the Chicago Academy of Medicine; Fellow of the American Academy of Political and Social Science; Delegate from the United States to the International Congress for the Prevention of Syphilis and the Venereal Diseases, held at Brussels, Belgium, September 5, 1899, etc. Second Revised Edition. Illustrated, with 233 Engravings and 7 Colored Plates. 6½x9¾ inches. Pages xv-1008. Extra Cloth, \$5.00, net. Sheep or half-russia, \$6.00, net. F. A. Davis Co., Publishers, Philadelphia, 1905.

The second edition of the author's practical survey of the field of genito-urinary and venereal diseases, in behalf of the general practitioner and the student of medicine, appears with some alterations of importance and a great improvement in the illustrations. In the treatment of gonorrhea, especially, the wide adoption of the organic salts of silver as the most reliable remedies for that disease, has acquired modification of the chapter covering this subject.

The text is in the author's vigorous style, teeming with excellent original suggestions in understandable language. As a handbook, our readers can depend upon it as one of the best and up-to-date.

The Diseases of Society (The Vice and Crime Problem).—By G. Frank Lydston, M.D., Professor of Genito-Urinary Surgery, State University of Illinois Surgeon to St. Mary's and Samaritan Hospital, etc. Illustrated. 8vo. Cloth, \$3.00, net. Postage, 17 cents extra. J. B. Lippincott Co., Philadelphia, London.

This book covers a wide range and is characterized by forceful and independent expression in understandable English. It is original in design and in conception, and intended for the general reader. The social questions have been attacked with a deliberation and fear from prejudice which must earn for the author respectful attention, both with those who agree, and those who differ from him in his deductions. He discusses freely, clearly, and thoughtfully the questions arising from the aggregation of wealth, the rights and wrongs of organized labor, the negro problem, and the crimes which have grown out of it, and the offences against the health of society. The social evil is approached with only one purpose—that of telling the truth and of suggesting remedies. The value of the work to students and teachers will be apparent. To sociological specialists it offers the opportunity to study facts which too often are but tentatively touched upon in works in the same field. To physicians it should be of the deepest interest and of practical usefulness.

The subject will certainly appeal to every thinking man and woman.

Pneumonia and Pneumo-Coccus Infections.—By Robert B. Preble, A.B., M.D., Professor of Medicine, Northwestern University. Illustrated. 12mo, pp. 211. Cloyd J. Head & Co., Chicago, 1905.

This well-written little monograph, based upon the author's wide experience in this disease, is worthy a place in any medical library. It is a practical common-sense view, and will be found helpful by the student, and by the general practitioner.

A Nursery Spy.—Miss Martha T. Bensley, a Chicago woman of means, has without the knowledge of those who have engaged her, played the part of nurse-girl and governess in many prominent families of the United States, her purpose being to gain information regarding the real attitude of American mothers toward their children, and the prevailing conditions in the nurse-girl situation. She has been as far West as Nebraska, and as far East as Boston, and has covered the more representative phases in our domestic life, and has reached the appalling conclusion that "American women do not have nearly the regard for their children that they should. I found that in the course of my adventures, the children of the richer classes were overdressed and overfed."

THE CLINIQUE

RECENT ADVANCES IN BACTERIOLOGY.

The Boas-Kaufmann bacilli are long, thread-like micro-organisms, so often found in stomachs in which carcinoma exists; when blood was added to cultures of this bacillus, its growth rapidly increased. It is rarely found in the stomach contents, in benign conditions, due perhaps to the absence of blood in the stomach. The various causes which seem to favor its occurrence, are stagnation of the stomach contents; absence or decrease in the production of hydrochloric acid; absence of fermentation; erosion of the upper surface of the stomach; the presence of albumin-detritus and blood, following ulceration. Schmidt reports a case, a laborer, aged 37 years, who had had stomach symptoms over 8 years. He had attacks of pain often lasting days, generally more frequent in the winter; the pain was near the pylorus, and worse at night, and he could not lie on the right side while it lasted. With constipation the attacks grew worse; after vomiting or lavage, they improved. This was undoubtedly a case of benign stenosis of the pylorus, probably due to a cicatrizing ulcer. The cultures from the stomach showed pseudo-lactic acid bacilli and other flora. Then he reports a case of a man of 63, who suffered from stomach trouble for 13 years, accompanied with much flatulence. From the stomach contents a pure culture of the bacterium coli grew, but no lactic acid or Boas-Kaufmann bacilli. The case was one of carcinoma ventriculi. The colon bacilli, he explains, may have come from the oral secretion, following their ingestion with food or drink, or they might have come from the duodenum.

Notwithstanding that all careful diagnosticians recognize that in many instances an accurate diagnosis of lung tuberculosis cannot be made without a microscopic examination of the sputum, and while a routine examination of the expectoration is made in all well-regulated hospitals, anything approaching a routine sputum-examination by the general practitioner is not practised; indeed the sputum is not examined at all by the general practitioner except in rare instances.

Higgins reports his observation on the use of anti-streptococcus serum in the treatment of puerperal sepsis with the report of five cases: his observations are confined to the use of the serum in five cases occurring during the past year. He feels that we cannot fail to be disappointed in the result of the serum treatment and are obliged to conclude that as a curative agent its power is limited. Higgins believes that the serum has a marked depressing effect upon the patient and is not to be indiscriminately administered to a very sick patient repeatedly and in large quantities, as is sometimes done in following the directions that come with the serum. He further believes that the serum treatment has no position in the routine treatment of puerperal sepsis, that it should only be employed in such desperate cases after one has failed to obtain improvement by other efficient remedies, and that if then no improvement is manifested within two, or at the most, three days after 40-60 c.cm. have been used, it should be stopped.

Lashenkow discussing the various forms of poisoning by decomposed food, points out that in many obscure cases which cannot be elucidated by a chemical examination, the poisoning is due to bacterial toxins. In the case studied by him about 200 persons were poisoned

by cream tarts obtained at a well-known confectioner. The symptoms were those of gastro-intestinal irritation and varied considerably in intensity, resembling in some arsenical poisoning. They all recovered. A bacteriological examination of the cream mixture, which is usually composed of milk, eggs, sugar, flour and pastry, showed the presence of streptococcus pyogenes aureus of unusual virulence. A series of experiments established the fact that when the cream mixture becomes sour and is kept in a very warm room the pyogenic cocci with which such mixture is liable to become contaminated develops very rapidly. The suggestion is made that the cream mixture be heated to 80-90° C., and the tarts kept in a cool place after they are finished. Moreover, the manufacture of cream tarts in very hot weather should be stopped.

Virulent tubercle bacilli have been found in butter and inoculations and inunctions of this butter have produced both true and pseudo-tuberculosis in animals. Markel used the Obermueller method, inoculating centrifugated butter. Out of 45 cases inoculated, not one died with true tuberculosis, and only one with pseudo-tuberculosis. Only ten animals died with peritonitis. None of these injected with margarin died with peritonitis. Markel describes the pathogenic micro-organism in his pseudo-tubercular case. It is a relatively acid bacillus, taking Gram's stain.

Leroy believes that the importance of anaerobic bacteria has been overlooked in the past; following a systematic series of researches he has been able to isolate 14 species of strictly anaerobic organisms. These are the principal agents of a whole series of affections of a gangrenous or putrid nature. They have been isolated in otitis, pulmonary gangrene, appendicitis, puerperal infection and a host of other conditions. These bacteria have the property of causing necrosis in living tissue and to produce a process of disintegration in them analogous to putrefaction. They not only act locally but by the toxins which they secrete provoke general poisoning.

Eisenberg reports a case of collicystopyelitis in a girl of 18, from whose urine, collected by catheterization, he obtained a pure culture of bacterium coli. The patient's blood-serum gave with this culture an "agglutination," and later a typical "thread" reaction, even when diluted 1 to 600. Not one of the many colon bacilli cultures from her stools agglutinated, or gave the "thread" reaction. This "thread" reaction was present in cases of typhoid fever which gave the Widal reaction, not in those which did not. The serum of immunized horses also gave the typical "thread" reaction. It has also been obtained with human or dog's blood from healthy individuals, with typhoid or colon bacilli. He believes with Kraus, that the reaction simply accompanies the "agglutination," and, contrary to Pfaunder's opinion, is not to be regarded as specific.

The haematozoon of malaria exists in the red corpuscles of the blood; at maturity it forms a number of spores by direct division, set free by the destruction of the red corpuscles producing fever; set free, they attack other corpuscles, and penetrate into their substance, producing another cycle. One spore completes its cycle in seventy-two hours, causing quartan fever; one in forty-eight hours, causing tertian fever; and one in twenty-four hours, causing quotidian fever, including the pernicious malarial fevers. In chronic irregular fevers, a special form of parasite, called the "crescent"

form, is found free in the blood, but its genesis and the form of its earlier conditions are still uncertain. In all these varieties, the early stages are the same and it is only after a certain development has taken place that they can be distinguished from each other. Here high and good powers of the microscope and skill on the part of the observer are necessary, when they are looked for in the freshly drawn blood from the finger. For the more developed forms of the tertian and quartan parasites, and for the crescent bodies, a magnifying power of 500 to 600 diameters is sufficient, although for their study a higher power is required—1,000 diameters is necessary.

Slides and cover-glasses should be cleaned in mineral acids and then in alcohol. Preserve them in alcohol till they are required. Washing the bulb of a finger first with soap and water, and then with alcohol, bind the first joint lightly with an elastic ligature; prick the bulb with a sharp needle, wipe off the first drop, then take a small drop, about the size of a pin's head, or very slightly larger, on a cover-glass, and lay it on a slide. It is ready for immediate examination; but to prevent the blood drying it is convenient to pass, with a camel's hair-brush, a streak of vaseline round the edge of the cover-glass, or what is much better, melted paraffin, which immediately cools and forms a solid border to the preparation. Parasites present in the first or "amibula" stage, may be seen as small, generally round, light spots on the red corpuscle. If motionless, they are very difficult to distinguish from the colorless round spots often seen in the red corpuscles, but they display amoeboid movements, and they can be easily distinguished; they become larger and very minute grains of pigment become visible in their substance, mostly on the periphery. In the quotidian parasite this pigment is extremely fine, and only visible by high powers. In the tertian parasite it is a little coarse, but still very fine, and is generally seen in very active movement.

In the quartan parasite it is coarser than in the tertian, and its movements are very sluggish. As the parasite approaches maturity, the pigment masses itself in the form of a central clump, and the substance of the parasite is seen to divide into spores, separated by lines which radiate to the centre, the so-called "rosette" form. In the quartan parasite more particularly, a minute round point can be seen in each spore. The crescents which are free in the blood can be easily recognized by their characteristic shape, which may be either slightly curved or straight, and by their size, but more easily by an accumulation in the centre of a small pigment mass which is seen under very high powers to be composed of very delicate and fine pigment rods. Somewhat large rounded bodies, without evident structure and permeated uniformly with minute pigment granules, represent parasites in which sporulation has not taken place, and which are evidently sterile. The parasite may be stained and examined immediately in the fresh blood. The following methods are recommended by Feletti: (1) Place a small drop of alcoholic solution of methylene blue on a slide. The drop spreads out and dries. The quantity of color left should be only enough to color the glass very slightly. Place on the centre of the spot a drop of the blood to be examined. Apply the cover-glass, and seal the preparation with paraffin. The parasites, if present, are stained blue. (2) Take one

drop of saturated alcoholic solution of fuchsin or methylene blue, and place it in a watchglassful of distilled water. Place a drop of this diluted stain on a slide. Then place a small drop of malarial blood on a cover-glass, and apply the cover-glass to the drop on the slide. A slight movement on the edge of the cover-glass is sufficient to mix the blood with the stain. A good preparation made in this way is transparent, and does not show the color of the blood, rendering nucleolar structures of the parasite distinct.

Thin has found the following method very useful in observing crescent forms, particularly when they are few in number; also rendering the intra-corpuseular forms of the malarial parasite visible. A small drop of saturated solution of methyl green, to which 1 per cent. of acetic acid has been added, is placed on the slide, and the cover-glass with the freshly-drawn blood is placed over it, and sealed with paraffin. The corpuscles being discolored no longer impede observation, and any crescents which are present can be easily seen by a low power. They are recognized by the small clump of pigment in the centre. The body of the parasite is seen as a smooth, well-defined body of a pale green color. All the forms of the malarial parasite developing within the corpuscle are stained with this fluid and are easily seen in the fresh blood, but the color soon begins to fade later. The use of dried preparations is often necessary. There are also questions connected with the delicate structure of the parasite that do not necessarily have great interest for the practicing physician, which can be best studied in dried preparations. The thin layer of dried blood is obtained by placing a small drop taken with the same precautions as when fresh blood is examined, and applying the cover-glass on which it is received diagonally over another cover-glass. As soon as the drop has spread out between the cover-glasses, the one is drawn gently away from the other, and the blood allowed to dry. When the layers of blood are dry, place them for ten minutes in a mixture of equal parts of alcohol and ether. Again let them dry, and put them aside for future use. They may be preserved indefinitely. To stain these cover-glasses, methylene blue, alone or a combination, is best for diagnostic purposes. Loeffler's alkaline solution is an active dye and is very convenient. It is made by adding 30 cubic centimetres of saturated solution of methylene blue in alcohol to 100 cubic centimetres of solution of potash of the strength of 1 to 10,000. Filter some of this solution into a watch-glass; float the cover-glasses on the fluid for ten to twenty minutes, then rinse them with distilled water, let them dry thoroughly, and examine either dry or mounted in balsam. Dried preparations fixed to the slide with paraffin keep the color longest. It is useful to employ a combination of eosin and methylene blue, as the eosin stains the hemoglobin of the red corpuscles, whilst the methylene blue stains the parasite. It is better to use the dyes combined than one after the other. Chezynsky's formula is the best. It is made by mixing 20 parts of $\frac{1}{2}$ per cent. solution of eosin in 70 per cent. alcohol with 40 parts of saturated solution of methylene blue, and 40 parts water. Filter some of the solution into a watch-glass, and place the cover-glass on it for a quarter of an hour to twenty minutes, if an incubator temperature of 98° F., is used, or from half an hour to two hours, according to the time of the year, if at the ordinary room tem-

perature. But it is easy to watch the progress of the dye by rinsing the cover-glass in water and examining it under a low power, and putting it back again in the dye if necessary. Dry and mount as directed when Loeffler's solution is used. Successful preparations of this kind are satisfactory and conclusive. The young amœbæ are seen as small blue bodies in the eosin-stained red corpuscles, and when further advanced the pigment granules stand out very clearly in the blue. The sporulating bodies are seen well, each spore being distinctly stained, and the central pigment is distinct. Dried preparations can also be successfully used for hematoxylin staining, which very clearly brings out the nucleolar elements of the parasite, but for ordinary diagnostic purposes methylene blue staining is best.

Ruffer and Creudiropoulos have found that the various toxins of the bacillus pyocyaneus dialyze through the walls of collodion sacs, but not in their entirety; the time taken in the dialysis is comparatively long, and the pathogenic properties of the toxins vary according to the length of the dialysis. It is probable that the immunizing substances are among the first to dialyze, so that advantage of this property may be taken in the manufacture of vaccines.

THE INDICATIONS FOR PROSTATECTOMY.

It is undoubtedly true that catheter life only lasts on an average five years. Then infection of the bladder, kidneys or ureters is apt to occur, destorying life eventually. Even when it is possible to avoid infection, backward pressure upon the kidneys produces degenerative changes, which culminate fatally through some more direct agency.

The need of surgical interference in prostatic obstruction is imperative in many cases, as seen from this statement. The principal point of discussion is the time most suitable for operation. As a rule, as in other surgical conditions, the sooner the operation is done the better it will be for the patient, as the condition will be less critical, the operation less formidable, and the results more pleasing. These growths are largely adenomatous in character.

Lydston, in a recent issue of the *New York Medical Journal*, gives his views on the factors to be considered in prostatectomy as follows:

- "1. Patients at or not far beyond middle life, with sound bladder and kidney. These should be operated on, as a rule, immediately the diagnosis is made.
- "2. Patients of the foregoing class in whom slight or moderate pathological changes of the bladder, ureter and kidney have occurred. These should usually be operated on.
- "3. Patients at about the middle period of life, in whom serious renal disease exists. These patients should be treated palliatively, either by the catheter or simple suprapubic drainage.
- "4. Patients from 55 to 65 years of age, in whom the bladder and kidneys are either sound or not severely diseased. Here operation is indicated. In this class of patients, where serious bladder and kidney disease exists, operation is inadvisable.
- "5. Patients from 65 to 70 years of age. In the exceptional instances where the patient has used the catheter for some years, and has thereby demonstrated tolerance for the instrument, the bladder having remained healthy and the kidneys functioning perfectly,

there is a question in my mind as to whether operation should be performed. If vesical complications have arisen and the kidneys are in fair condition, or if catheter life has been recently begun, and in all cases in which catheterism is attended by discomfort, operation should be advised. When serious complications of the kidney have arisen, palliation only should be considered. In most cases of patients from 65 to 70 years of age, the mortality rate is not high unless the kidney is in serious condition. Where the patients have tolerated catheter life for a long time without the occurrence of complications, the question of operation should be determined by the patient's desire to free himself from catheter bondage.

"6. Patients above 70 years of age. In patients of advanced years in whom the use of the catheter is not attended with discomfort and the patient remains in a satisfactory condition generally and locally, there is a question in my mind as to whether the operation should be performed save in exceptional instances. In cases of advanced age in which catheterism is not performed with facility or fails to make the patient comfortable, radical operation should be considered. In many instances, however, it is better to perform a palliative operation for suprapubic drainage and reserve prostatectomy for later performance, on account of serious complications. In some instances permanent suprapubic drainage is the only operation that is permissible."

Phillips, in the *American Journal of Dermatology and Genito-Urinary Diseases*, investigated the results of prostatectomies by questioning thirty-nine authorities. He found that the adverse criticism came rather from operators who were little versed in the operations, either Bottini's or a prostatectomy. Horwitz, on this same subject, writes as follows:

"Danger to the patient commences as soon as it is necessary to resort to the daily use of the catheter. A Bottini operation or a prostatectomy performed as soon as the symptoms of obstruction begin to appear with the low mortality which attends such cases, offers the individual a better chance for health, comfort and prolongation of the life than the unfortunate patient who leads a catheter life. * * * We have advocated early operations in both private and hospital practice for a number of years, and so far have not had any reason to regret having done so. On the other hand, we have frequently had reason to reproach ourselves for being too conservative by delaying surgical intervention in prostatic troubles."

Undoubtedly this is modern teaching: The physician with a commencing case of prostatic hypertrophy should at once be awake to his duties and lay the matter clearly before his patient.

Music in Surgery.—Perhaps the strangest use to which music can be put is to stop the flow of blood from a wound, as in the following report: An army doctor noticed that when a wounded soldier was taken to within an easy hearing distance from music, hemorrhage was greatly reduced or stopped. Neither he nor others who confirmed his observations could understand how this phenomenon was brought about, but it is now believed that the vibration of the air produced by the music causes the patient to become faint, in which case the action of the heart is so considerably lessened that the overflow of blood is reduced.

RETROSPECTIVE THERAPEUTICS

The Treatment of Pneumonia.—Osborne (N. Y. *Med. Jour.*, Jan. 7, '05) requires good ventilation; the movement of the patient from side to side, to obviate hypostatic congestion; venesection in the plethoric; antipyrine; one dose of 15 grains followed by a brisk purge. Bowels should be moved once daily. Dry cupping may be used, but aconite or veratrum are equally good abortifacients. No overfeeding; one quart of milk with two eggs is sufficient for twenty-four hours. Expressed beef-juice is a good muscle stimulant. For high fever sponge abdomen and extremities—not the chest—with tepid water. Nuclein may be given if leucocytosis is deficient. Poulitices are permissible. Codeia is best for an irritable cough; ammonium muriate and ipecac in syrup of citric acid is an excellent stimulant expectorant. Use alcohol only when circulation calls for it—one to three drams every three hours. Nitroglycerin will equalize circulation; strychnine will restore a flagging, tense and irregular pulse. Adrenalin should be used cautiously. Camphor and olive oil may relieve an acute heart failure. Oxygen is appropriate for severe cases. Chloral and ergot for delirium; morphin cautiously for pain. Ice cap for headache.

Common Nerve Injuries.—Sherren's classification (*Chn. Jour.*, Aug. 31, '04) is into complete and incomplete anatomical division caused by wounds or rupture; and the same sorts of physiological division caused by compression. The principle is to keep up nutrition of the parts supplied by the nerve until its conductivity is restored. Wounds in situations likely to involve nerves should be very carefully examined. For suturing nerves fine catgut is preferable to silk; but silk should be used if there is any tension. Contused ends should be removed. Suppurative scar tissue is the great hindrance to recovery. An incompletely divided nerve had best be sutured, as scar tissue may interfere with the function. There should be drainage for twenty-four hours. The limb should have a bent splint to avoid tension. Twelve months may elapse before recovery. The nutrition of the skin and muscles must be kept up by massage, to be begun as soon as the wound has healed; electricity is unnecessary. Muscular atrophy must be guarded against; it may occur even in complete nerve regeneration. In secondary suture there are two stages—preparatory and restorative. In the first the nerve is freed and the ends prepared by the removal of scar tissue. The upper bulbous end, being formed of a mass of nerve fibres mixed with fibrous tissue, must be removed. Generally the ends come together easily, with or without bending of the joint. Nerve stretching may have to be resorted to; if this fails other methods are: (1) nerve grafting—the ideal method, (2) suture with catgut enclosed in a decalcified bone tube, (3) nerve anastomosis, which should be employed only when the upper end of the divided nerve cannot be found or when the gap is too long for grafting; and (4) resection of bone, which method should be avoided. Nerve grafts may be obtained from a recently amputated limb, or from a cat, dog or rabbit. Catgut should here be used. If nothing else will serve, the patient's own radial nerve may answer; because of its free anastomosis division or removal of this nerve generally produces no alteration in sensation. Division of the musculo-spiral nerve is seldom followed by anesthesia. The nerves most often injured subcutaneously are the musculo-spiral, ex-

ternal popliteal and circumflex, and cords of the brachial plexus. Rest and massage of the injured parts will, in cases seen early, be followed by recovery. If muscular atrophy occurs the injured nerve must be found by operation and freed of fibrous tissue. If a fracture callus press on the nerve it must be removed and a layer of muscle interposed under the nerve. If the nerve has been dissected out of fibrous tissue further adhesions should be prevented by permanent gold-foil coverings, which will not irritate the tissues. If, in complete division of a nerve, the reaction of degeneration is established in the muscles at the end of ten days, operation should be performed. No prognosis concerning the extent of injury can be made during the first few days. It may be that completely paralyzed muscles will recover rapidly, so that no operation will be needed; such will be the case if the muscles react to the faradic current after ten days. If at the time of the injury no damage is visible to the naked eye, the wound should be closed. After treatment must be carried on very patiently, as recovery may be very long delayed.

Leprosy a Curable Disease.—Tomkin (*British Med. Journal*) expresses his personal belief that leprosy is curable, and that it often yields to the influence of improved circumstances. In this respect it resembles tuberculosis. Since the days of Moses, leprosy has been regarded as incurable, the belief having acquired the force of tradition. Leprosy is incurable only in the sense that we have no remedies which alter its course as dramatically as mercury and the iodide of potassium effect the course of syphilis. Leprosy is a disorder presenting every grade of severity. As a result of a study of two hundred and twenty cases, the writer comes to the conclusion that the average period over which fatal cases extend is about a dozen years. After fifteen years it is probable that the disease in any individual case has become quiescent. After twenty, the signs will often be so indefinite as to defy recognition. Of the two hundred and twenty cases studied by him, 24 per cent. have survived the fifteen-year limit, while in 8 per cent., the period of invasion had been from fifteen to twenty-five years before. Many of these cases had lost fingers and toes, but for periods varying from five to fifty years, they had been free from all active manifestations of the disease and had followed ordinary occupations.

In the discussion, Jonathan Hutchinson said, that there was nothing new in the idea that leprosy was a disease from which recovery was possible, and he welcomed Mr. Tomkin's advocacy of it. He has long taught that there was a natural tendency to cessation of all active processes if the patient lived long enough, and in this respect leprosy resembled tuberculosis. In leprosy where recovery takes place there is usually no tendency to relapse.

The Conservation of an Army's Health.—The measures adopted for the prevention of disease by the Japanese prove the great hygienic superiority of this wonderful nation, says *American Medicine*. Since the greater part of the mortality in all wars is due to disease, the able manner in which this nation has grappled with and solved this problem must command universal admiration. It has remained for them to prove that the systematic use of scientific methods is a most powerful ally in warfare—a lesson to be heeded. Major Louis L. Seaman, who has just returned from the seat

of war, says the sanitary precautions observed in the Japanese army are so perfect, that, despite the fact of the "notoriously unhealthy" region in which the war is waged, the loss from preventable disease in the first six months of the conflict will be but a fraction of one per cent. This extraordinary result is attributable to three causes: (1) The powers given to the Japanese medical officers; (2) their preparation for war, and (3) the excellence of the ration furnished to the soldiers. Major Seaman emphasizes the fact that the Japanese are the first to recognize the true value of an army medical corps. He says: The medical officer is omnipresent. You will find him in countless places where, in an American or British army, he has no place. He is as much at the front as in the rear. He is with the advanced scouts, with his microscopes and chemicals, testing and labeling wells, so the army to follow shall drink no contaminated water. When the scouts reach a town, he immediately institutes a thorough examination of its sanitary conditions, and if contagion or infection is found, he quarantines and places a guard around the dangerous district. Notices are posted so the approaching column is warned, and no soldiers are billeted where danger exists. Microscopic blood tests are made in all fever cases, and bacteriologic experts, fully equipped, form part of the staff of every divisional headquarters. The medical officer is also found in camp, lecturing the men on sanitation and the hundred and one details of personal hygiene—how to cook, to eat, and when not to drink, to bathe, and even to the directions for the paring and cleansing of the finger nails to prevent danger from bacteria.

The excellent result of adopting such rigid measures is evidenced by the report of the reserved hospital at Hiroshima, which shows that up to August 1, 9,862 patients were admitted, and of these 6,636 were wounded, making a total of 3,226 medical cases. Of the entire number of cases up to that time only thirty-four had been fatal.

The Treatment of Pulmonary Hemorrhage.—The treatment of this grave condition is by no means adequate. Therefore Dr. W. B. McLaughlin's method, described by him in the *Medical Record* of September 17, 1904, is a distinct and valuable contribution. Dr. McLaughlin rightly premises that hemorrhage in the lung differs from that in most other tissues. The lung is an elastic organ, which is constantly expanding and contracting—an important consideration in view of the time element essential to the coagulation of the blood in the lumen of a ruptured or eroded vessel. The air cells surrounding the site of a hemorrhage become filled with blood—really a fortunate circumstance, since the resulting clot immobilizes that portion of the lung. It occurred to Dr. McLaughlin, therefore, to adopt such measures as would assist in the formation of such a clot as promptly as possible; to try and limit the clot to the smallest possible size that will accomplish the desired result; and to prevent the dislodgment of the clot, once formed, until sufficient time has elapsed for the eroded vessel to become permanently occluded.

To meet these indications, Dr. McLaughlin would decrease the reflex irritability of the lung tissue, and would limit the respiratory movements of the side from which the hemorrhage is coming. The former of these objects is achieved by an immediate hypodermic of nitroglycerin, 1/100 gr., and morphine, one-quarter grain; the latter by strapping the chest, on the affected

side only, with adhesive plaster during forced expiration, after the manner of strapping for broken ribs. Considerable pressure should be used; and the entire half of the chest should be covered, from the axillary fold to the lower costal margin. The patient is then removed to the open air. Four days after the hemorrhage has ceased the straps are removed, and the out-of-door treatment is continued for one week more. This method has been tried in but seven cases. In all the hemorrhage was promptly and permanently controlled, without secondary rise of hemorrhage in any case. These results are certainly good enough to justify an extensive trial of Dr. McLaughlin's method by the profession.

Predisposition in Mental Etiology.—De Montzel (*Jour. de Neurologie*, July 5, '04) considers that little weight is attached by alienists to the diverse personalities of patients and the influences which have affected them. He believes that, whatever may be the exciting cause of insanity—social, biological, moral, physical, toxic, and the like—if there is no anterior predisposition there will be no insanity. Such predisposition is either congenital or acquired. The former may be through heredity, through the state of the parents at the time of conception, or that of the mother during pregnancy. Heredity is not merely a hereditary tendency to insanity, but is rather a neuropathic heredity; this may be the result of consanguinity, which does not merely accumulate good or bad qualities, but which develops and strengthens them in the highest degree; hence its great danger.

Psychic and nervous derangements may arise from a tubercular heritage, but not from gouty or diabetic states. One or both parents may here be tubercular, but there may be no neuropathic agency at work. The author does not find that the cancerous diathesis has the same evil influence upon descendants. There are three origins of the hereditary predisposition to insanity—a neuropathic tendency, consanguinity and tuberculosis. The author attaches no importance to the moral condition of the parents at the time of intercourse resulting in conception; but he considers the physical condition of greatest importance at this time. Even a moderate degree of alcoholic excess at the time of coitus, perhaps in persons of sober habits, is sufficient to produce a tendency to insanity on the part of the offspring; of course, the tendency would be much more marked where there is habitual drunkenness on the part of the parents. The same holds good with regard to lead poisoning. Advanced age in the parents may cause a tendency to insanity. Other such causes may be traumatism and paludism about the time of conception.

The condition of the mother during pregnancy is an important consideration. Here the moral condition is a factor, as are all the others above enumerated. The author's experience does not confirm the opinion that defective hygiene and insufficient nourishment during pregnancy are important factors; he finds, however, that fatigue, especially when constrained attitudes are necessary, acts much in the same way as traumatism.

A child may, of course, be born free of all hereditary taint of insanity and may yet become predisposed to this disease; the author has seen the predisposition acquired under only six conditions: typhoid fever, paludism, alcoholism, lead-poisoning, traumatism and sunstroke. Of course febrile delirium, and such as results from infective processes, attack all persons without regard to predisposition; but the mental symptoms differ greatly ac-

cording to the presence or absence of this factor.

When the predisposition is lacking, "infective delirium" is characterized neither by sensorial or emotional perversions, and so is completely free from hallucinations and delirious conceptions; the disturbances are intellectual. The six causes of acquired predisposition just stated are more powerful in the child than in the adult. An injury to the skull in childhood, for instance, might induce idiocy or other consequences much more severe than in an adult; the same is true of alcohol, as when an infant is suckled by a drunken mother. Overstrain in study in early life is far more injurious in the predisposed than in those not so.

Arterial Tension in Typhoid.—The conclusions of Carriere and Dancourt (*Rev. de Med.*, Aug. '04) were based upon the study of forty-one cases of typhoid in children. Arterial tension shows more or less important variations under the influence of this disease. Nothing is known about its alterations during the prodromal stage. At the beginning of the fever it is diminished, the mean tension being 8.7 instead of 13 or 14. During the second and third weeks it gradually increases, without much oscillation, to about 9.28. This is somewhat greater than the mean tension during the whole course of the disease. The tension falls with deference to the beginning of convalescence, during which period it slowly but progressively rises to normal. The decrease of tension is always relatively and absolutely greater in children than in adults. Hypertension is sometimes found, though lowered tension is the rule. A slight attack without febrile symptoms usually passes through its course with slightly raised tension. The tension alone is of no service in the prognosis of a fatal ending, nor does it provide any aid in the diagnosis or prognosis of the clinical forms of the fever. It is, however, of great service in revealing complications. A raised tension is found the day or even several days before a hemorrhage. It accompanies congestions, especially of the lungs, pericarditis, and violent delirium. Low tension is not necessarily indicative of myocarditis; perhaps the opposite obtains. To auscultate regularly and to keep a record of the pulse is essential, the frequency being more important than the tension. Aortic lesions, alimentary affections, abscesses and secondary infections do not affect the tension. Hypertension, being the forerunner of hemorrhages, delirium, pulmonary congestion, as well as causing heart-strain, needs active treatment. The authors prefer spirits of nitrous ether to the more powerful vaso-dilators. For hypotension they rely upon cardiac tonics, holding vaso-constrictures to be dangerous.

Hepatoptosis.—Einhorn finds this condition by no means rare. Accompanying this affection there is often also a descent of the stomach and even of the heart. Much can be done by a suitable abdominal support. Eliot (*Med. News*, Nov. 12, 1904) operates as follows: Median incision above umbilicus exposing liver and stomach. The obliterated umbilical vein forming a thick cord in the free edge of the falciform ligament is drawn forward until it comes in contact with the parietal peritoneum. The hepatic extremity of the ligament then rests against the under-surface of the right lobe of the liver in front of the transverse fissure. The lower or umbilical extremity is in close contact with the anterior parietal peritoneum, the two portions of the ligament now forming a right angle. In this position the round ligament is attached to the anterior

parietal peritoneum with chromic gut, and the redundant falciform peritoneal reflection is sutured to the contiguous portion of the parietal peritoneum with the same material, in this way forming a species of shelf for the under-surface of the liver. The abdominal wound is then closed in layers.

Sterile Water Anesthesia.—Gant (*Med. Rec.*, Oct. 29, 1904) substitutes plain sterile water for cocaine and like solutions in his rectal and anal operations. His patients have usually not required a general anesthetic, nor have they had to go to hospitals. The anesthesia is apparently produced merely by the pressure of the fluid on the nerve terminals in the tissues. Sufficient water should be introduced to distend the tissues thoroughly, so that they will become anemic and assume a glassy whitish appearance. From ten minims to half a drachm are necessary for small hemorrhoids; from one-half to four drachms for more extensive operations. No more force is required than is usually employed in making hypodermic injections. This method, while not applicable for major operations, is appropriate in cases of hemorrhoids, fistulae, fissures, and the like. There is an initial smarting upon injection which is but momentary.

Looking for Trouble.—Dr. W. H. Wiley recently dwelt upon diet as a factor in the prevention and care of consumption before the American Association for the Advancement of Science. He declared that among the food material appropriate for such sufferers is alcohol, in the forms of beer, wine, whiskey and brandy. In many maladies, alcohol had apparently been used to great advantage, and, doubtless, he considered, such was the case in tuberculosis also.

Marmorek's Antitubercular Serum.—*The Practitioner* states (Dec., 1904) that the account of this serum given by its inventor in a lecture in London, was not very convincing, any more than its consideration by Parisian physicians was favorable. However, "a fair number of observations have now been made as to the effects of the serum, and if no very clear evidence even yet exists as to its efficacy, still, on the whole, the results are rather in its favor than the reverse." Dr. Richer (*Montreal Med. Jour.*, Sept., 1904) finds that among seven cases in which he used this serum, six were apparently benefited. In one, a hopeless case, death was hastened by its use. Richer compares this effect with the reputed action of diphtherial antitoxin in causing actual harm in cases of diphtheria, in which it is administered late in the disease. This assumption of Richer is certainly debatable and is not in accord with what we know thus far of the nature of antitoxins. It is difficult to imagine how such a harmful effect is induced, apart from the mere action of a foreign serum of any kind injected into a debilitated patient. If the toxin of the disease is present, the serum should tend to neutralize it, whatever the state of the patient, although it cannot withdraw toxin which has already entered into close combination with the cells. If, on the other hand, there is no poison present, the antitoxin should do no more harm than it would if given as a prophylactic. Frey, of Davos, reports (*Münch. Med. Woch.*, Nov. 1, 1904) a series of nine cases and speaks guardedly as to the antitoxic effects of the remedy, but thinks that good effects are produced on the patient's general condition, appetite being improved and weight gained. It must be evident to all that the good effects recorded by Richer and Frey can just as well be attributed to the

merely hygienic treatment which is the basis of modern phthisio-therapeutics. However, we would not for a moment decry experimentation with sera. It needs no great spirit of prophecy to declare that they are bound to become a most important factor in the treatment of tuberculosis. One point, however, we would make against Marmorek's serum is that it is a purely animal product, derived primarily from tuberculous animals. A serum derived primarily from human subjects will be more likely to be efficacious.

Forms of Neurasthenia.—Dr. A. D. Rockwell, in the *Medical Record*, points out that one of the most striking differences between neurasthenia from fatigue and neurasthenia from autoinfection is the mental confusion characteristic of the latter. It is probable that this confusion of thought is almost universally the result of autointoxication and peculiar to it. How many times in neurasthenic cases from overstrain have I seen temporarily this added symptom of confusion, due, unmistakably, to toxic influences. The character of mental phenomena in toxic and non-toxic neurasthenia differs, according to my experience, in one other important respect. In both forms we find depression and a profound sense of misery, but in the non-toxic form the irritability is not so extreme, nor do we see such unreasonable outbursts of temper, as in cases in which the nerve cells are actually poisoned by imperfectly transformed products.

The Trained Nurse.—Tom Masson observes in *The Smart Set*, that when he was sick, a trained nurse "came in the still watches of one evening, and laid her soft, cool, twenty-five-dollar-a-week hand on my burning pauper brow, and thenceforth, her salary and my fever ran on together, not even stopping for meals—that is to say, the nurse herself stopped for meals, but not her salary. About noon each day * * * * * she would part from me with tears in her eyes, and a choking sensation in her throat, and a look of keen agony, and slip gently downstairs, and spend a few hours over the family board, while the cook threatened to leave and the hot-water bottles on my jaded stomach became frappé. She came to me with a complete set of books, a clinical thermometer and the story of her past life. When she had taken away my temperature and gone off with it to some far corner of the room and examined it critically by the light of a tallow dip, and set it down in Ledger B, where I couldn't see it, she picked up her trusty pad and began to write a historical novel, of which I was the unhappy hero. From that moment I felt that about me there was nothing sacred. The second day after she came, * * * * * and the doctor had told her all about me that she hadn't been able to find out, she began to relate to me the story of her past. Two weeks later the crisis in her story and my fever were both passed. We both survived; but at this late day, I have an idea that her story is even now the more robust of the two. The trained nurse is now a necessity in every modern home. As an antidote to medical science, she has no equal. Dressed in rich, but not too gaudy bed-ticking, and armed with medals won in the Crimean War for reading *Punch* aloud to the sick soldiers, she stands over one's bedside like a guardian angel, and no germs can pass the line without giving the courtesies."

Typhoid in Chicago.—Since the opening of the drainage canal, in 1900, the deathrate from typhoid fever has decreased almost 45 per cent.

MISCELLANY

Professor Koch, it is reported, has started on a new scientific expedition, to Dar es Salam in German West Africa, in order to complete researches which he has already begun on cattle plague, and to study other diseases of the tropics which affect both man and animals.

Tartarized antimony, states Yeo, is unexcelled in relieving the distressing dryness of mucous membranes in *acute bronchial catarrh*. Small doses may be combined with morphia, codeia or opium. A few doses of aconite are indicated for marked temperature. Yeo prefers antimony to apomorphia.

The **National Association for the Study and Prevention of Tuberculosis** will hold its first annual meeting in Washington, D. C., at the new Willard Hotel, on May 18 and 19, 1905. There will be general sessions and divisions of the work into sociological, pathological and bacteriological and clinical and climatological sections.

1904's death-rate for New York State has been the highest in years; and the number, 141,564, is the largest recorded. Per 1,000 population the rate has been 18.2, as against an average for the last five years of 17.2. Pneumonia was a chief cause in the early part of the year; 14,000 deaths, or ten per cent. of the whole, were due to consumption.

Uterine fibroids are discussed by Goffe (*N. Y. Med. Jour.*). Barring cases of pregnancy and of advanced age, all fibroids should be removed at once, no matter what their size. Most women having fibroids will go to term and have a normal delivery. Yet, if trouble is feared, it is still best to wait for possible Caesarian section at full term, which, in the hands of an expert, is less dangerous both to the mother and child than is myomectomy during gestation.

The **first woman physician**, states the *Woman's Medical Journal*, was Madame Boirin, the famous midwife, who was given the degree of doctor by the University of Paris nearly a century ago. She was not only an excellent practitioner but had also literary attainments. Besides membership in French and foreign scientific societies she held an honorable position under the government as chief inspector of a home for convalescents.

Thrombosis and Embolism, states Dearborn, S. S. (*Annals of Gynecology and Pediatrics*) are more common after operations in the pelvis than after operations elsewhere in the body. He considers that many cases of pleurisy, pneumonia and pulmonary abscess following operations are possibly due to emboli. Large emboli almost always cause death by syncope or asphyxia; those which are very small usually run a favorable course. Thrombosis should be suspected when there is any sudden increase in pulse rate during convalescence, the temperature remaining normal.

The **Influence of local applications of cold upon the heart** is considered by Krebs (*Berl. Klin. Wochenschr.*, Apr. 28, '04), who finds that in many cases in which weakness, either nervous or organic, is present, the local application of cold acts favorably, resulting in improved quality and regularity of pulse by elevation or arterial pressure. The best results are obtained when the apparatus for the local applications of cold is used in conjunction with strict repose on the part of the pa-

tient. In other cases than those above mentioned there is no objective result beyond an influence of a psychic sort. The results obtained by this treatment cannot be compared with those due to the action of digitalis.

Valuable clinical material has been lost to the students of the Viennese hospitals in the death of Magdalena Gelly, states the *N. Y. Medical Journal*. This woman had become able by constant practice to control her pharyngeal muscles. She could undergo prolonged examination without reaction of the vocal cords; could produce at will spasmodic contraction of the Eustachian tube; and owing to a special sensitiveness of the mucous membranes she could tell students when their catheterizing of this tube was at fault. She could even introduce foreign bodies into the respiratory passages and allow students to practice their removal. In this way, she made her livelihood, charging two florins for each clinical session.

The **effect of sea water on sunlight** has been investigated by Leo (*Deutsch. Medicum. Wochen.*, Dec. 22, '04) who based his studies upon the greater severity of the solar erythema caused by exposure at the seashore. Oxidations in certain chemical bodies were produced when these were dissolved in sea water and exposed to sunlight, but did not occur in the dark or when plain water was employed. The decomposing effect of light on enzymes and yeast cells is not increased by the presence of sea water, and in some instances it appears to reduce the photodynamic activity of the light. Boiled sea water, as well as that artificially prepared, seems to have the same photochemical properties as the natural product.

The **Art of Choosing a Husband** is the title of an excellent book by Paolo Mantegazza (trans. from the Italian by Gabriel C. Charton, London; Publ. Gay and Bird). The author, a medical man, advises his daughters concerning the professions: Never marry an idler, a banker, a mediocre author or artist, or a medical man of little culture, who may always be compelled to flounder in mediocrity. The only good seats in the medical profession are in the stalls and boxes. "The pit is a prison and the gallery is the penal settlement where hard labor is enforced." Medicine is a profession in which it is impossible to climb to the topmost height unless encouraged by love for humanity or the aspiration for fame. Experience teaches that everything else being equal the best of all husbands is—the soldier! But then the genial author writes in conformity with continental standards.

Cornell's brainless frog is dead. This animal lived for more than five years after its cerebral hemispheres were removed. Dr. Wilder, of Cornell University, contended that in animals the cerebrum was the seat of consciousness and volition; he decerebrized this frog, which was put into an open glass jar. During the last five years this animal never once showed signs initiative, its only movements being very slight and attributed to muscular ennui, like that of persons asleep. The eyes, optic nerves and optic lobes were uninjured. The animal evidently could see, but without understanding. Food was absolutely unnoticed, and every day an attendant opened his mouth and with forceps pushed a fresh bit of meat or fish far back until the reflex mechanism of swallowing was aroused. If touched it would move or leap; if placed in water it would swim until some support was reached; if turned upon its back it would at once right itself—but it would never move of its own accord.

NARCOSOMANIA, WITH REPORT OF TWENTY-ONE CASES.

BY THOMAS HORACE EVANS, M.D., PHILADELPHIA, PA.

PART IV.

ABSINTHE.

THE use of this, like that of cocain, is widely extended.

It produces a raw, wild ecstasy. The delights of cocain are paralleled without the excitement to intellectual work. The sensuous appreciations of morphin are also frequently associated.

CASE XVI.—Mrs. C. W., aged 37 years; actress. Over ten years ago I met her, by chance, at a summer resort. I noticed that she was able to drink absinthe in astounding quantities. Since then I learn that a progressive mental deterioration has caused her to lose her former occupation. For several days at a time she would drink in large quantities. She was always of a nervous but not excitable disposition. I noticed the air of worryment, and brow-furrow which occurs in cases of anisometropia and astigmatism. She had been twice unhappily married. The use of absinthe gave her relief, she told me, from both physical and mental depression.

CASE XVII.—Mr. E. S., aged 49 years; married, having two daughters. He is an artist and designer. It is a typical case of eye-strain with gastric reflexes, and neurasthenia.

As soon as he returns from work he retires to his room and puts himself under the effect of alcohol. Or he may use absinthe in excessive amounts. His wife is a chronic sufferer from asthma. His daughters, at the age of 17 and 18, are developed to the appearance of complete maturity. They are large overgrown girls, and inherit neurotic tendencies which already have made themselves evident.

Mr. S. is nervous and retiring. He never seems to care for company, nor the excitement of the theatre or other public places. I believe there are evidences already, beside the gastric and neurasthenic reflexes, to show a certain borderland alienation.

There is a tremor in the hand, nervous gait, and explosive speech, associated with hyperresonance and tension, which indicates the approach of the danger point.

Habitues of absinthe are too well-known, along the boulevards of Paris and in the café-chantants, for me to devote space here in describing. The weak, nervous, relaxed body, and the dulled intellect, are the unhappy results the presence of which in this country is becoming only too frequent.

TOBACCO.

Unlike the preceding narcotics, tobacco is generally recognized as a permissible resort.

Consequently, with its regular but moderate use we do not find or expect such typical cases of narcosis in the extreme, due to its influence. With regard to morphin, however, in China, there are those who may openly devote themselves to it and in whom the regular and moderate use seems to exert scarcely more harmful effect than tobacco. The lymphatic temperament of the people may be an important factor in this.

In general, tobacco is a muscle irritant and poison, according to the size of dose. H. C. Wood says that, applied directly to the excised cardiac muscle, tobacco will increase contractile spasm. He says that it exerts scarcely any direct influence on cerebration. In those of normal nervous organization there are rarely any dangerous reflexes, until the narcotic is used in excess. I believe that there are beneficial effects due to its use, especially since recent experiments (Il Policlinico, Rome, 1904) have shown that tobacco restrains excessive sexuality. It has been known for some time that involuntary muscle is more directly the objective point of tobacco than the voluntary. Since we have learned

that the chromophilic centres exist not only to control the involuntary musculature but also are found in connection with the secondary sexual glands, there is a reason for the relations of the above effects. What the effect on metabolism may be has not yet been worked out.

But in the neurotic, already in a state of physiologic imbalance, the effects of tobacco are certainly harmful. Indeed, certain types of neurasthenics are unable to bear the narcotic at all. Others find a peculiar and grateful influence arising in it. These, for years, may keep themselves under its effects, until reflexes become established, or organic deterioration which results in actual shortening of life. There are also cases of individuals unable to endure tobacco as cigars, who take easily to it in the form of cigarettes. This indicates a certain immaturity of nervous association, or a tendency to instability, innate or acquired. I shall consider here only cases in which the use of tobacco is encouraged by special tendencies of a neuropathic foundation and in which relief for these is the object of the patients, even as their use of alcohol or other narcotics would take place.

The main physical effect of tobacco arises from an alteration in muscle sense. It must not be forgotten that impressions are continually reaching self-consciousness from the field of organic reflexes, and that we certainly appreciate modifications of function and structure in the body as definite sensations. With a decrease of peripheral irritation the mind is freer to pursue introspective trains of thought, and association is not only furthered but, temporarily, metabolism is excited in its effort to remove waste products. Metabolism will not remain increased, however, and eventually the reaction is to be held responsible for much of the trouble noted in tobacco excess. These pathologic effects arise at the start in cases of morbid organization.

Are we not familiar with the type of nervous agitation in business life, in which the man bestirs himself unnecessarily to gain slight ends, ever smoking, ever restless, slight in build, with a resonant voice, excited manner, and yet of good judgment and successful? General U. S. Grant, not entirely of this type, approached it.

While the neurasthenic youth, pale, chilly, inert, with the cigaret flavor to his speech and manner, him, too, we know.

To see a healthy athletic fellow smoke a cigaret is like an elephant sporting with a pebble—a pastime. But the cigaret fiend, the neuropath, who succumbs to its narcotic effect, as the dipsomaniac to alcohol, is a very different and melancholy example.

On the other hand—the woman well up in years, who takes her "Copenhagen." Snuff fiends are often evidences of eye-reflexes uncared for. The age and habits of a patient give much precious advice.

How often in difficult cases does the physician watch his patient, when the latter is off guard; I mean do we ever follow the doings and manner of the patient at work and at play, when he does not act the part so many do in the consulting room? I have gone to my patients' business places, or to the school, to see the man or the child at his occupation. There the whole appearance is changed. The child ties himself up in knots, to write; and the eye-reflex is evidence which would have been missed in our office examination. The business man may be seen with a constant succession of cigars in his mouth. He is imperative, nervous, irrit-

able, and on edge; while in the consulting room we found him quiet, relaxed, and depressed. Perhaps, too, we will notice something in his gait; his lunch hour is carefully to be studied—the hour may have dwindled to minutes, when he takes to stealing digestion time for business. We must remember that those of neuropathic constitution require a very different order of the day from the normally reacting individual. The workman, moreover, in these rapid days has demonstrated his right to share in the nervousness and neurasthenia which prevails. The weaver, the mechanic, may show peculiarities of eye and ear, or difficulties arising in the nature of his occupation, which may be responsible for the neurasthenia, or aggravate it. It is well to question the friends of the patient. Young girls may not care to admit the use of cigarettes, but their mothers may be able to let some light in on a difficult diagnosis.

CASE XVIII.—J. F., aged 61 years; business man. Left a widower before the age of 40, and remarried at 55. All his life had been of a nervous, irritable disposition. From youth up had been subject to headaches and so-called bilious attacks from which he was advised to take occasional doses of blue mass. Some element of eye-strain undoubtedly exists, although his eyes were never refracted until 3 years ago.

Entered the army at the age of 17 and continued through the war of '61-'65, when he left to enter mercantile occupations. Has always been accustomed to bookkeeping, letter-writing and other eye work incidental to such pursuits.

When the period of tension comes on, the mental pressure and sense of stricture and oppression through the whole body, he will resort to tobacco as cigars, or in a pipe, smoking without a let-up, until systemic effects are established. First the sense of bodily oppression is lost, and then ideas flood in with relief and unobstructedness, in sweet contrast to the anxiety and restraint which had prevailed.

The patient undoubtedly is neurotic. He has always had a fear of crowds—he cannot sit in public assemblies with comfort or enjoyment—the heat and sense of confinement produce the reflex, so that he feels he must rush out into the open. There is a fine tremor in the hand, especially pronounced as tension rises. This is both vascular and ideomotor. Thoughts rush across his mind in a shattering confusion, and his manner is agitated and indirect. As this proceeds, tobacco would seem to bring relief if pushed to the limit.

The old attacks of biliousness ceased with the advent of presbyopia. Now, there are intervals in which symptoms of lumbago are coupled with nephritic irritation. During these times he is unable to lift heavy weights, or, indeed to maintain with comfort an erect position, on account of pain and weakness in the back. Albumen appears in slight quantities in the urine, and the aortic second is accentuated. There has long been some mitral insufficiency, due to a rheumatic endocarditis.

In this case, as in other typical instances of tobacco narcosis in the neuropathic, we observe an intermittent period when the use of the drug falls to a minimum or is for a time given up. The diagnosis is to be made partly from this, and from the abnormal systemic effects, and coincident relief of the *plus* or *minus* nerve associative difficulties, and irritation.

CASE XIX.—I. D., youth, aged 20 years; student. Congenital phimosis and masturbation wove a part in the neurasthenia of this patient. He is extremely sensitive to all surroundings, light and sound. His eyes are anisometropic and astigmatic. He is not rapid at study nor remarkable in memory. But shows an intuitive ability which goes far to make up for other deficiencies.

Since the age of 17 has used alcohol with typical neuropathic exhilaration. Since the age of 14 has been accustomed to an excessive use of tobacco, principally in the form of cigarettes—the expensive, so-called Turkish ones—containing opium, as he showed me by tests, his study being chemistry.

He has had the habit of going downtown, when in the period of tension, to drink heavily, smoking during the day from 30 to 50 cigarettes. He will take a cab and drive around town during the night, going to several dens of vice in the typical neuropathic way, i.e., for the pleasure of seeing and experiencing the sensation of seeing. Elements of double personality, as from excessive introspection, are frequent. Actual effort,

manly application to obtain definite results, is usually defective or absent. To plan, to anticipate and to glory in, rather than to do, is the rule.

Fortunately, financial reverses made it necessary for this patient to get down to hard work, which has proven his regeneration. Instead of long hours spent on a Turkish divan with clouds of cigaret smoke clouding his brain, he is now settled to work at his business and is beginning to achieve distinct success. The neurasthenic underground is evidently functional and not complicated by severe organic changes. With the regularity of life, good diet, and mental restraint, I believe his future is fairly safe. However, any excessive strain would result in relapse to narcotics, and probably worse ones than tobacco. The tremor and relaxation of his skin and muscle is almost gone. He no longer has the nervous agitated manner of the user of narcotics, in his period of reaction or excess; and while some tension appears in intervals of overwork, it appears to be within control.

The temperamental modifications, which coincide with cigaret excess or tobacco narcosis, are due, in my opinion, to disturbed metabolism in an already unstable economy. Sexual inversion is to be accounted for in this way in such cases. Much damage may be done by impure materials in cigarettes; the presence of opium can often be demonstrated. Mixed narcotics are always particularly dangerous. The worst debauch I have ever seen was the result of a combination of cigaret, cocain and alcohol. For days afterward the patient complained of shifting objectives in his sight; so that he could scarcely calculate distances. This, I take it, was produced by retinal instability. The patient could not eat, having a feeling of satisfaction, so that food seemed unnecessary and undesirable. The patient lost weight rapidly, and great vasomotor weakness was evident. The leaky skin and relaxed musculature, together with general lack of initiative, is to be taken as the cause of much which leads to apparent indolence or depravity.

Cigaret smoking in excess appeals only to the neuropathic. For to these alone will the peculiar effects exert their appeal. The patient is certain to act along lines of least resistance, and for this reason his particular environment is responsible for the type of case. If a living is to be gotten by personal efforts, or not, is a deciding matter. The goodwill of friends, or the absence of desirable companionship, sets the gear high or low, and inclines to sexual excess, crime, laziness, or artificial intellectual efforts, as the case may be.

In those instances in which the use of a narcotic is evidence of disease and not depravity, we must assume some guiding effort in the patient's life. To this his interest and attention at first under the narcotic are doubled. Only when organic reactions intervene, does he sink to perversities. At first he is elevated, and ambition calls louder than ever. The chase of the narcotic proves it an unhappy *ignis fatuus*.

The tobacco sense of rest and tranquillity, which at first it excites, later militates against anything but a transient success. The whole point in literature or art is symbolic. Hence the associative or suggested influences of the work are sure to make themselves felt. The activities of the neuropath reflect his abnormal condition. In such work the normal person realizes the abnormal element, and is repulsed, or at least not sympathetically aroused. Therefore, narcosomaniacs rarely succeed in surmounting the pathologic cradle of their genius.

Their sympathies are too closely bound up in the super-sensitive and the indirect. Their work has too much overlining, and too little foundation of firmness and breadth, according to ordinary interpretation. Their ef-

forts are inconclusive, all because of their associative difficulties inducing a hyperesthetic and hypertonic insistence of *minutiae*, while the ground effect escapes them in the elaboration of detail. This is usual to find in the work of immaturity, and in the normal individual means no more than that.

But the abnormal world of narcosis, or of the neurasthenic, generates its own symbolism, sexual, esthetic, intellectual, ethical, and perceptual, which lays down its own laws, and is too unstable and elusive to appeal even to its own for long. The cigaret fiend, as any other narcosomaniac, cannot complete, because his world does not maintain equilibrium sufficiently to allow his ideas to focus on an entire and fixed objective, such as would reduce to terms of commonplace or artistic creation. Sympathy and synthesis must have some point of essential attachment. The instability of viewpoint of the neuropath means failure, unless he attempts minute or inconsequent occupation.

The overeffects of tobacco in any form are disorganizing. This begins in a pathologic relaxation of musculature and initiative. The tissue becomes filled with waste products of an autotoxic influence, and metabolism throws up its hands to the first invader. The understrain of nerve and mind becomes more and more pronounced.

I do not blame the cigaret or cigar for direct mental alienation. But through disorders of initiative, physical depression, sexual or metabolic sins, others enter the economy.

I believe cases of suicide, or depravity in boys, attributed to the use of cigarets, or temperamental changes eventuating in insanity, are in many instances, to be looked upon as side issues of sexual conditions, or excessive sexuality doubled upon itself in the event of lack of restraint or body balance. By this, I mean that energy has been wrongly directed, or diverted. The distinct sexual coincidences in nearly all cases of narcosomania are to be considered as exciting, as often as consequent.

The relation of tobacco to the involuntary musculature and to the chromophilic centres controlling that and also the secondary sexual centres is to be kept in mind.

It cannot be denied, in many cases of neurasthenic and neuropathic use of narcotics, and particularly of cigarets, that sexual energetic elements enter the equation. In art, religion, and in other emotional pursuits, whether directly or indirectly there is always to be found the sexual element. With misdirection, under the effects of narcotics, what might have been genius, becomes depravity.

One factor in this degeneration may be mechanical. Purely eye-reflexes may set up irritation in the first instance. Physiologic imbalances,—gastric, hepatic, or cardiac—may result in lines of less resistance to environment that tend to establish intrinsic psychic deviations, difficult to trace but easily to be suspected as consequent or causal.

TEA LEAVES.

Undoubtedly the use of tea, or coffee, by the neuropath leads to especial forms of narcosomania. I have not cases of such to report.

But the smoking of tea leaves is to be taken as productive of a new form of the disease. Of that I note the following:

CASE XX.—A young girl, aged 18 years. Has read of the practice, and made three attempts herself. She tells me that the sensation was peculiar and delightful. A feeling of dreaminess, languor and sense of light and color was followed by excessive tranquillity which led over into sleep. The resulting nervousness was extreme, however.

She had always been neurasthenic, and especially sensitive to light and sound. Under the influence of tea-leaves visions and harmonies swept into mind; while surroundings took on a distant, elusive appearance. She tells me that her mental relief was delightful. As in nearly all neuropathic cases, the event of tension turns the mind to thoughts of a disturbing nature. A sort of exhilaration leads over into psychic confusion in which wild desires and improper impulses arise. Then it is that temptation presents itself, and any narcotic appeals to the imagination.

She had read of smoking tea-leaves, and while ordinarily she would have refused, or been afraid to attempt such a thing, in the state of mental disassociation the effort assumed different moral proportions. She confessed that the nervousness for which I was called to treat her resulted from her use of tea-leaves, and I do not believe that she will return to the practice since she sees its consequences.

Such cases are often incipient to severer forms of narcosomania, and should be carefully followed. It is common to observe minor irregularities give confidence for more dangerous risks. I do not think that the normal individual would care to experiment in just the way a neuropath does. I mean that, normally, there is a certain daredevil spirit which declines, however, to go into mere narcosis, once that is evidently all the experiment leads to; although the inquisitive and curious may be seed for pathologic developments, normal curiosity is rather interested in excitement than in repose or passivity.

In the smoking of tea leaves neuropathic elements constitute the excitement, and fear of discovery as well as fear of personal harm is to be recognized as a factor in it.

The ordinary use of tea is one reason that its users do not go to extremes; and also its rather mild effect. But in certain individuals we do notice an idiosyncrasy which responds to the stimulus of tea in the pathognomonic manner—producing muscular atony, psychic irritation and disassociation, and general reaction. Such cases proceed on a moderate way influenced by other circumstances and never very pronounced, unless distinct gastrointestinal reactions bring on a secondary neurasthenia.

CANNABIS INDICA.

I am glad to say that I have not discovered the use of this drug frequent in the search of immoral haunts and practices which I made through the Eastern states of this country, and in France and Italy.

The account of acute poisoning with mental symptoms as given by H. C. Wood, (Proceedings Amer. Philosoph. Soc., 1869, Vol. xi. p. 226) is interesting, but cannot be taken to represent the results in neurasthenic or neuropathic cases, or from a prolongation of the use of the drug.

It must be remembered that all forms of narcosomania have to do with cases in which nervous associative difficulties are exciting causes or immediate consequences, and in which mental disturbances occur in the course of some intellectual or distinctive occupation, or in the event of the impossibility of normal pursuit of the same.

Having no data from this sort of experience in the case of Indian Hemp, I think any reasoning would be fallacious. I might suggest, however, that the use of *Cannabis Indica* is unlikely to become general in this

country. Certain races take more readily to certain narcotic influences as a matter of temperament. Indian Hemp appeals to the lymphatic, dreamy, passive temperament.

Cocain is the present danger of Anglo-Saxon races.

CHLORAL HYDRATE.

Cases of true Chloral narcosomania will be rare. Perverse instances occur primarily, or secondary to deprivation of other narcotics.

When a patient is discovered subject to the use of Chloral Hydrate as a psychic stimulant, or as a "mania" we will notice an epileptoid character to his mode of thought as a factor of influence. That is, he will be a rapid, disjunct thinker and speaker. Chloral depresses muscular activity. It may act on the mind by a reduction of certain peripheral influences—muscular sense, or the sense derived from certain other organic functions—or in a direct effect on essential protoplasmic faculties. Having no cases to report, I will pass to the next group, the interesting and to this time almost unnoted symptoms of which I wish to mention:

FOOD STUFFS.

As I stated, in defining narcosomania, it is not the narcotic, but the condition of narcotic relief which is sought.

Food, in general, or in particular, may bring about narcosis to any extent. We usually feel sleepy after a hearty dinner. The determination of blood is away from the higher nerve centres in which psychic association occurs. Again, narcosis may be induced by certain food stuffs, which are not easily digested, or to which the idiosyncrasy of the patient fails to accommodate.

Under this head I place neurasthenic instances of excessive carbohydrate eating, as of candy, or the habit of some people to gorge themselves on certain articles of diet, or to overeat what they know will disagree—not in every case, but in individuals of neurasthenic turn we will find that such excesses are periodic. This is a clew. Pure stupidity may result in alimentary excesses.

But when we can make out a period of psychic or bodily tension followed by indulgences in food stuffs, usually a particular one, after which there is a reaction, somatic or psychic, with vascular relaxation and general nervousness or irritability, the case is before us.

I need not quote such in detail. We may often observe the fondness of an overworked business man, or student, for candy—chocolates, etc.

A pound at a time may be eaten, after which digestion rebels—to no use; for the excess is repeated when the period of tension returns in a few days or weeks.

The peculiar relation of carbohydrates to muscular activity and the relation of the latter to the general initiative process is enlightening. On the other hand, people of lessened nerve conductivity take especially to fatty foods—the hydrocarbons. Children rarely like fat. People of advanced years prefer that form of food. In cold climates where conditions tend to depress nerve conductivity, fatty foods are especially desirable. In warm climates water and other liquids are in demand not only because of increased evaporation, I take it, but because of their essential requirement by the white matter of nerve which is affected by the extreme high temperature.

There is no doubt but that disordered metabolism, clammy skin, chilliness, muscular atony, and general initiative weakness will lead into the use of carbohydrates. But in the neuropath, or neurasthenic, the digestive functions are not able to keep pace with the demand and in the quantity in which the patient indulges. When the alimentary channels become choked up, impure or imperfect elements are certain to be supplied to the nervous system and with this interference a condition of narcosis may be determined. We have, then, resulting morbid reflexes established, into the vicious circle of which peripheral organic changes enter.

With the extension and prevalence of neurasthenia, I think the element of excessive or improper feeding is to be reckoned with.

In these cases marked variations of the psychic function can be correlated with gastrointestinal irregularities.

CARBON DIOXID.

The curious mania of suffocation is not always present in the alienated; if mania it be. Certain excessive sexual manifestations may be associated with attempts to choke or be choked. In these instances the suffocation sought is not permanent, or complete.

Certain neurasthenic individuals may exhibit a peculiar fancy for a narcosis brought on by suffocation.

We must distinguish between the desire that is based on excessive muscular initiative arising in the course of energetic functions, and a pathologic and passive desire to be suffocated, not directly associated with any muscular effort. In this latter form we may discover certain infantile, or immature cases of narcosomania.

The very immaturity may result in a desire to suffer narcosis by proxy. Nearly all narcosomaniacs enjoy having others in companionship.

This is not to be taken as a desire to inflict, so much as a desire to see inflicted—a passive sensation, by proxy, so to say. The more immature the case, the less typical. So that we may assume that instances of narcosomania may occur in rather a reversal of the usual form. Children, neurasthenic children, or neuropathic individuals of incomplete, or arrested development, may not manifest the disease in its restricted personal form, but show symptoms of a desire to have inflicted on others the narcotic influence. While *sadism* in sexual disease is analogous to this, by no means would I assert that sexual perversion need always take a part in the symptom complex of narcosomania of any form. Yet it may.

We will note that the desirable sensations sought by the patient he will imagine as taking place in his victim.

The patient's neurasthenia incident to the period of tension is assimilated by the struggles of the victim: and the relief is similarly paralleled—in the mind of the patient.

It is no pleasure, however, for the narcosomaniac to inject the cocain, or give the drink of alcohol, to his victim; he prefers that the latter or another should do this; the enjoyment is in the associated idea of infliction and suffering as passive, personally or altruistically.

In cases of suffocation mania the desire of the patient is to be choked, and to feel the dreaminess and languor of carbon dioxid poisoning. He will associate, for various reasons, certain occurrences in his mind, so that a logical train of circumstances will lead

up to the delights he has to imagine. One must proceed *toward* any object in order to invest it with a proper perspective and evidence. As I said above, there is not necessarily any sexual reaction. And yet in the general hypertonic state some sexual excitement is liable to occur, and thereafter reoccur.

Especially in the neuropathic this is to be guarded against. The very instability of organization means a derangement of the reproductive faculty—not only as ideation, but in the somatic or body reduplicative process.

Any accessible means of suffocation except those of actual personal muscular effort will be employed. I do not believe that the narcosomaniac cares for actual effort in order to attain narcosis. He is not willing to be left out of the enjoyment, and hence is not willing to administer to the pleasure of another, in any way that interferes with his own. Therefore, if alone, he employs any means of passive shutting off of oxygen; or similarly, if with others. Instances of the suffocation in closed closets of children by other children I believe in certain cases may be suspected to have occurred along such a line.

Some children show a delight in teasing and tormenting others. When there are signs of neuropathic development, I think the danger signals are out. The limited opportunities of danger among children are to be taken as responsible for the rarity of specific narcosomaniac instances.

But if these are suspected, worse dangers in future life might be suspected and avoided.

CASE XXI.—J. M., aged 12 years. Subject to croop and other nervous attacks. Not particularly bright or attentive, and with but an indifferent memory; origination and inquisitive withal.

Poor physique and low development of body, which is undersized. Large head, sweats easily. Headaches. Anisometric and astigmatic.

Voice in high register, clear and brilliant, striking high E with accuracy. By careful questioning, I secured the facts on which I base the following:

He gets confused and interested in a number of things at once. He believes he can do things easily, such as to be a General, or to build great edifices. He is interested in rail-roading, and plans immense systems. He draws maps of imaginary places, dreams over them, filling in capitals and cities, with seaports and other accessories. He invents names for these places and peoples the country, thinking about occurrences therein. Again, he will picture wild scenes to himself.

He has read much ancient history, and is familiar with standard literature. But has no access to current trashy stuff. His ideals are high and he scorns anything of impropriety. Yet he will become so excited as to arrange a rope around his neck and suspend himself, so that he is standing on only the tips of his toes; he will also fix a block of wood under his feet so that if it were removed he would really hang.

At this time great excitement comes over him, with confusional states of mind. A train of thought may bring to mind fragmentary events of history. He associates these with hangings or other executions, and he will imagine himself as taking part in these events.

I suspect that some sexual excitement also occurs, although he is bashful of speaking on such matters, and though apparently informed so that he could, I have not pressed the point.

He tells me that after a short time of this excitement, he feels rested and cooler in the head. I believe that in this neurasthenic case there is an element of narcosis directly visible. Aside from any sexual tendencies, and while the lad is precocious, I believe that the relief experienced is one of over-association followed by narcosis due to carbon dioxid auto-intoxication.

The foregoing case may let some light in on those instances in which boys are found to have hanged themselves, and in which no melancholy or despair

would be discoverable or of sufficient account to be taken as cause for self-destruction. An accident might convert the temporary hanging, or suffocation, into a thing of finality.

I believe that boyish abnormalities are very common, and due to immaturity or stupidity. Most boys recover, with their subsequent increase in nervous stability. When adolescence is established there will be normal pursuits, and better understanding, to keep them straight.

However, when an inexplicable case arises, in which some little one is discovered dead, in a closet, or hanged, as the public prints frequently have to record, the element of narcosomaniac excitation ought to be weighed before concluding that what appears intent was not accident and of such origin.

CATNIP, MOTHERWORT, ETC.

These simples may, indeed, be used as direct agents in certain cases to produce narcosis. I do not believe that such narcosis ever is complete in its results, but taken at bedtime a heavier sleep and more prolonged will occur.

There are many neurasthenic women who rely on frequent doses of teas made from such simples. These cases are distinguished by patients of a nervous irritability, yet intellectual in type. Their voices are shrill, resonant and shifting. We notice a tendency to excessive nerve reaction, and periods of intense hypertone, alternating with depression. These good women become known for their kindnesses, at times, and for periods in which to brave their tempers were courageous indeed. The solace which they find in catnip tea, etc., I think ought to be taken as direct evidence of a pathologic desire of nervous relaxation, not so venturesome, but similar to the benefit experienced by morphin, cocain, or other habitués.

The type of individuals addicted to the use of these herbs is one which is perilously near worse excesses. Happier surroundings, or lack of opportunity may be the sole reason for their preservation.

We find the neurasthenic variations produced by the same irritative agents. There is neglected eye-strain, organic reflexes, hepatic or cardiac disease, or asthma, etc.

The infinite gradations of personality give infinite variation to disease.

Among animals, too, certain forms of neurasthenia may arise. Although not of the human type, because a difference in intellectual power. But it seems probable that instances of vicious nature in cats or dogs or horses may well be attributed to elements of eye-strain, or internal disorders.

There are animals—special individual cases, I mean—who seem markedly attracted to certain herbs. They may undoubtedly find in the use of these herbs some relief for conditions analogous to human neurasthenic or neurasthenic torments.

IDEATION.

An actual narcosis may be sought for and brought to pass through excessive ideation; the mind seemed to inundate its mechanism with waste products and sink beneath them.

The faculty of introspection, as practiced in India by devotés, seems to lead over into emotional stages and to a certain narcosis.

In neurasthenic individuals, whether from lack of control, or direction of thought, day dreaming may become an actual means of relief sought for in nervous irritability.

When the period of tension occurs, the patient will resign himself to delicious thoughts of what he desires, or anticipates. If he has been endeavoring to do some intellectual work, this appears already complete, and he enjoys the triumph as though already real.

The decadent or degenerate forms of art are often to be interpreted along this line. An endless detail, an endless rhythm, or an irregular indirection marks the tone of the work.

Unfortunately, the patient soon declines to worse narcotics than pure imagination gone on a riot. He may, also, develop actual delusion, or insanity, in the course of what is at best an erratic life.

Suicide.—The idea of self-destruction, or some other actual mania may possess the patient.

If he really were tired of life, he could easily accomplish this end. But this he does not.

He plays with himself. He delights to see how near to self-destruction he may approach; he declines to die, however, so that he may prolong the enjoyment of the process. In this is the clew to the desire which constitutes the entity of all forms of narcosomania. The patient enjoys the subjection and its effect, so much so that he will not exert himself to reach a climax, but drags on the pleasurable excitation, with the usual physiologic result of decrease of stimulation and necessary increase of stimulus.

Some time, the suicide narcosomaniac will make a mistake and die. He is always glad of a helping hand out of this extremity when he finds himself in trouble.

Death.—The haunting idea of the delight of being dead may constitute another phase. An illustrious example of this may be found in Spanish history.

The patient delights to think of things correlated with his death. He does not wish death, perhaps, for fear of cessation of his delight.

Again, he may concentrate all his intellect to attain a fearful and monumental exitus vitae.

For a long while he has been preparing. His dreams and writes all about himself. In the necessary process of thinking at all, certain associated ideas crop up—at first, merely associative—later predominating for want of initiative, and through lines of less resistance which come to play a part. He may believe he is ill of an incurable disease. Or, that people wish his death. Or, that religious reasons demand it. Because of the association of certain melancholic or unhappy thoughts with the train of his pleasurable sensations he finally comes to take a real delight in the melancholy, or unhappiness.

He will hold off the fatal moment in sheer delight of contemplation—until accident, or sudden resolve, or perhaps insanity, turns him to the final event.

This psychic form of the disease often complicates the other chemic or mechanical manifestations.

EPILOGUE.

So the drama plays itself. It is the drama of life, and the comedy and tragedy of emotion.

The variations are eddies in the great evolutionary tide that rises and sinks on the eternal sands. With one word we may describe it as the origin of species, and with another, as the mutation of essential conscious-

ness; according to viewpoint.

And, the while, the chorus of Fates and Muses chant regardless of the fortune or suffering of the individual. Beauty is somatic, morality is psychic, but life is neither kind nor unkind—it simply exists; so that in essential consciousness, as in the formation of species, there is an impersonal perfectuality that attains and transcends with impartial exactness through the sequence of necessity.

The patient may be threatened, restrained, or punished. He is in the current of events as the feather in the breeze, and as helpless in himself.

What, exactly, is the morbid process which he suffers?

The factors of evolution, read in terms of the biologic series, are indicated in the four original protoplasmic faculties. These are: contractility, irritability, nutrition and reproduction, which become somatic as the four organic reflexes, respectively, *initiative, temperament, trophism, and sexuality*. In the disease process which we are considering, the ground and evidence is to be read in these terms.

Through nerve associative disorder which becomes registered in these reflexes, the patient suffers from a mutable conflict of intellection and emotion. This will bear the weight of a conflict of intention, of sensation, of judgment, of thought. With the shifting neurosthenic and neurasthenic states, the process of ideation will be correspondingly impaired. Imbalance resulting means more difficulty, and increased conflict. Essential degeneracy or functional derangement will prove the vicious ground of most of this. The period of tension is the stage of rising conflict.

Without a narcotic, the desperation and suffering of the patient may lead over into any sort of tempestuous outbreak. As I have shown before, in the period of increasing tension mental disturbances may develop temperamental peculiarities that may have the appearance of actual insanity. Much brutality, crime, or depravity may have its source herein.

The numbing of consciousness by means of a narcotic may tide over the dangerous moment. The need of narcotics, however, is due to general ignorance, or unwillingness to face the situation.

The existence of individuals who suffer these desperate extremities, is to be admitted and the sentiment of the community must be aroused. It is undeniable that in the social evolution we have duties and obligations owing such as these, as well as the duties and obligations which we owe ourselves to preserve the community.

We must study the infinite gradations of human nature, as evidenced in health and disease. We must realize the great prevalence of borderland states.

I fear that there is an amount of positive cruelty shown daily in punishment of so-called criminals.

Frequently these will be found to be degenerate, and so defective in physical, moral and mental organization as to be truly incompetent to fill places in the social system. That they attack it is natural. What folly is shown when the drunkard is sent up to serve a penal term. As well punish the choreic or the epileptic. The inseparability of physical and moral states of being, ought to teach us the impossibility of treating them apart.

Because evolution, in the factors of civilization, has set these degenerates aside may be reason for us to

guard ourselves from them and restrain them, but never to punish or inflict unnecessary pain.

The prison is a blot on civilization. It is an economic blunder. It is a physiologic crime. Those who are to be restrained for the good of all ought never to be treated with the inhumanity which formerly characterized our attitude toward manifestations of physical disease. The days of cruelty to lunatics, lepers, and the deformed, have passed. When will the sun rise upon a general recognition of the rights of all who have failed to attain the normal?

The restrained criminal, in his loss of liberty, has a claim on us for the right to personal initiative, so far as he cannot endanger the community. This view is certain to be accepted in the future, and any delay will be the cause of as much condemnation.

The factors which go to find ground for the seeds of narcosomania are frequent and must be combated. These are the same as are recognized to enter the field of neurasthenic and neuropathic development. The intense competition of the day is to be held accountable for a measure of this. Competition is not wrong. But those of us who erect our monuments upon suffering humanity through the opportunity it offers, incur a moral obligation to make up in every possible way for those sufferings to the ones who have made our successes possible.

Suitable and honorable occupation must be found for all from childhood up. Our aim must be beyond what our passions and prejudices would indicate. There is a supreme obligation upon us to aid in the evolution of mankind, in which process there is no advantage to be proven consequent to the infliction of unnecessary pain one upon the other.

If crime, if deformity, or unpleasantness, attaches itself to the user of narcotics, let us not punish for the results, but treat for the causes; and save from despair the unfortunate, who too often sinks to punishment amid merciless and undeserved obloquy.

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Adenoids and Ear Affections.—Grazzi (*La Clin. Mod.*, An. 9, Nos. 4, 5, 6, 7) finds adenoids in 6% of his ear, nose and throat cases; this is a very small proportion. Heredity seems a marked etiological factor, with regard to adenoids; unhygienic surroundings, tuberculosis, heredity syphilis, rickets and zymotic diseases all have more or less marked influence; other factors are, degenerative processes in the nervous system, disturbances of the thyroid, etc. The most important symptoms due or attributed to adenoids are those relating to the ear, as deafness, earache and otorrhea. In children the commonest type is that of catarrhal otitis; in adults, hyperplastic sclerosing otitis. Skeletal alterations in the upper jaw are often present as a secondary result. The first baneful effects of adenoids on the auditory apparatus usually start in the middle ear and afterward on the internal, which may be damaged by way of the blood and lymph channels. There may be palliative treatment by nasal douches and the Politzer bag. For removal Grazzi uses cocaine locally (10% to 20%) or general anaesthesia by ethylic bromide. Post-operative treatment is purely hygienic (keeping to the house and closing the nostrils with sterile gauze). The operation is contraindicated in the presence of hemophilia, any marked dyscrasia, epidemic disease or tuberculosis.

THE HISTORY OF THE ANTITOXIN TREATMENT OF DIPHTHERIA WITH THE REASONS FOR ITS SUCCESS.

BY A. K. YOST, M.D.

FIFTEEN years ago sewer-gas was considered the common cause of diphtheria by general consent. Now we know it is an infectious disease which must spread from one living organism to another. Smith, five years ago in a scholarly article, showed that schools are a most important factor in diphtheria's dissemination; he described several epidemics due to this source, while Murphy, in a report to the London county council, shows that, taking three periods—four weeks before vacation; the four vacation-weeks and the four weeks after vacation—there is a remarkable reduction in the vacation-period from the antevacation-period, followed by a still more remarkable increase in the postvacation-period. That sewer-gas cannot disseminate the disease is shown from the fact that germs cannot rise from moist surfaces, and also from the fact that while the sewage-system of cities and towns has been improved, diphtheria has not decreased in proportion. Bond suggested a possible method for the dissemination of diphtheria in schools where the children are allotted slates for their daily use from a common supply. The children lick their slates in cleaning them, and as the same slate is not necessarily given to one child, a child having diphtheria-bacilli in his buccal secretions could thus easily infect a number of fellow-scholars. Riesman reports a case *sui-generis* as regards the infection; here the patient was a bacteriologist, who received a laboratory-infection while transplanting virulent culture of diphtheria from one class to another while engaged in the manufacture of diphtheria-antitoxin. The pipet, sterilized in the naked flame, had not cooled when the diphtheria-culture was drawn up into it. Volatilization occurred, and the bubbles of steam forced portions of the fluid directly into the mouth.

Biggs, Park, and Beebe, in a valuable report on bacteriological investigations and diagnosis of diphtheria come to the following conclusions:

(1) An acute hyperemia of the mucous membrane caused by the Löffler bacilli is considered as truly diphtheria as an inflammation with pseudo-membrane or exudate, and a case in which the lesions are confined to the larynx or bronchi as truly diphtheria as one in which the tonsils and pharynx are involved.

(2) Under pseudo-diphtheria should be included all inflammations of the mucous membranes, which simulate true diphtheria, and which are due to streptococci, or, more rarely cocci.

(3) The name croup or membranous croup should be regarded as a term merely indicating that the location of the pseudo-membranous or exudative lesion is in the larynx, and not so describing the nature of the disease, whether diphtheritic or pseudo-diphtheritic.

(4) The examination of cultures made upon solidified blood serum, form a reliable method of determining whether the diphtheria bacillus is present or absent in a throat. For diagnostic purposes, cultures should be made before the pseudo-membrane or exudate begins to disappear.

(5) Virulent diphtheria bacilli were apparently in about 1 per cent. of healthy throats in New York City at the time of these examinations. Diphtheria, however, was rather prevalent in the city at this time, and most

of the persons in whose throats they exist have been in direct contact with cases of diphtheria. Very many of those whose throats contain the virulent bacilli never develop diphtheria. We must, therefore, conclude that the members of a household in which a case of diphtheria exists should be regarded as sources of danger, unless cultures from their throats show the absence of diphtheria bacilli.

(6) The bacilli found in the original serum cultures, which in appearance and staining are identical with the typical Löffler diphtheria bacillus, may be regarded, for diagnostic purposes, as virulent diphtheria bacilli, if the cultures have been made either from throats containing exudate or from those of persons who have been in contact with true diphtheria, for investigation has shown that over 95 per cent. of such bacilli are virulent.

(7) All bacilli which are identical with the virulent Löffler diphtheria bacillus, morphologically, biologically, and in staining by reagents, should be classed with the diphtheria bacilli, whether they have much, little, or no virulence when tested in guinea-pigs. Bacilli which have entirely lost their virulence rarely, if ever, regain it. They probably are incapable of causing diphtheria, for in twenty-four cases in which they were found, there never developed any lesions, nor were they the origin of any case of diphtheria, so far as could be ascertained.

(8) The name pseudo-diphtheria bacillus should be regarded as applying to those bacilli found in the throat which, though resembling diphtheria bacilli in many respects, yet differ constantly from them. These bacilli are rather short, and are more uniform in size and shape than the Löffler bacillus. They stain, as a rule, equally throughout with the alkaline methyl-blue solution, and produce alkali in their growth in bouillon. They are found in about 1 per cent. of the healthy throats in New York City, and seem to have no connection with diphtheria. They are never virulent.

(9) One or more varieties, both of streptococci and other forms of cocci, exist in the great majority, and possibly in all of the healthy throats in New York City. Cultures from the throats in cases of pseudo-diphtheria contain more cocci, especially more streptococci, than those from healthy throats, but otherwise do not seem to differ.

(10) The investigations of the Health Department have given striking evidence of the marked difference in mortality between true and pseudo-diphtheria, for while it was 27 per cent. in diphtheria, it was under 2 per cent. on pseudo-diphtheria.

(11) The combined clinical and bacteriological investigation of over five thousand cases has demonstrated clearly the fact that many of the less characteristic cases of diphtheria and pseudo-diphtheria are so similar in appearance, symptoms and duration, that it is impossible to separate them, except by bacteriological examinations. In the more severe cases and after the disease has fully developed, cultures are less necessary, although their systematic use is desirable.

(12) Persons who have suffered from diphtheria should be kept isolated until cultures prove the bacilli have disappeared from the throat, for not only are the bacilli which persist in the throat virulent, but they are not infrequently the cause of diphtheria in others. Where cultures cannot be made, isolation should be continued for at least three weeks after the disappearance

of the membrane, for experience has shown that it is not unusual for the bacilli to persist this length of time.

(13) In pharyngeal cases in which thorough irrigation of the nostrils and throat with 1 to 4,000 bichloride of mercury solution has been practiced every few hours, the bacilli have not remained in the throat for as long a time after the complete disappearance of the pseudomembrane as when no antiseptic has been employed. Other cleansing and antiseptic solutions are also useful.

(14) Inflammations of the mucous membranes due to streptococci, either alone or associated with other cocci, are usually mild in character. These inflammations may be more serious when the lesions are located in the larynx, or when they are complicated by scarlet fever or measles.

(15) While the streptococci and perhaps other forms of cocci may be considered as the primary etiological factor in pseudo-diphtheria, yet, in the majority of cases at least, certain predisposing factors, such as exposure to cold or other deleterious influences or the presence of certain infectious diseases appear to be of great importance in determining the occurrence of the disease. The streptococci which under these conditions apparently cause the disease, are probably those which had for a long time existed in the throat, and not those freshly derived through communication with other cases of pseudo-diphtheria.

Mouraveiff, in investigating the action of the diphtheria-toxin on the nervous system, found that lesions in the spinal cord preceded the development of paralyses, which occurred only when neuritis set in. Lesions in the brain and medulla (chromatolysis and vacuolization) were not marked. The spinal ganglia were only slightly affected, except in one case, in which the nuclei and also the posterior roots and columns of Goll were very much degenerated. The heart and muscles were unaffected, except in those cases in which the nerves were greatly degenerated, a rupture of the muscular fibers then occurring. The vacular lesions consisted of capillary hemorrhages. The diphtheria-toxin is an elective poison, picking out the motor cells of the cord and the peripheral motor neuron, respecting usually the white substance. Sevestre believes that diphtheria-bacilli, when obtained postmortem from the internal organs (spleen and medulla), do not depend simply upon propagation, but upon postmortem diffusion. He quotes Martin, who found bacilli in the blood 24 hours after death when cultures from the blood a few moments after death had been negative. In reply to Barbier's explanation of diphtheritic paralysis as due to the presence of the bacilli in the medulla, he quotes Roux's experiments in producing paralysis with toxin alone. Barbier in opposition thinks that the affection of the medulla would not be so great compared with the lesions found elsewhere, if it were caused by the toxin absorbed in the throat and circulated quickly through all the organs, but that the selection of the medulla by the poison is because of its being generated in that region.

Diphtheria antitoxin was injected hypodermically or intravenously in rabbits and from his experiments, Spronck draws the following conclusions: 1. The hypodermic injection of 10 c.c. of antidiphtheria-serum or of non-immunized horses's serum (without the addition of antiseptics) produces in rabbits weighing two or three kilos a very slight albuminuria, which lasts only twenty-four hours, and is due simply to a filtering through of

some of the injected serum. 2. The passage of this albumin is rather more marked and lasts longer when the rabbit is suffering, or is just recovering, from diphtheritic albuminuria. 3. Antidiphtheria-serum does not in any way aggravate a pre-existing diphtheritic albuminuria in the rabbit, even when relatively large doses are injected hypodermically. 4. On the contrary, it has a favorable action if injected at the beginning or not later than twenty-four to forty-eight hours after its appearance. 5. Antidiphtheria-serum is incapable of removing a diphtheritic albuminuria; but it may modify its course favorably both in intensity and duration. 6. It is too early to transfer these conclusion from animal to man; still, they bear a striking analogy to those formulated by Sevestre and Martin from clinical observation. One important fact taught by the author's experiments is that good from injecting antitoxin can result only in recently established diphtheritic albuminuria, and this probably accounts for the clinical observation that the action of antidiphtheria-serum on diphtheritic albuminuria is inconstant. 7. To explain this favorable action, one must suppose that the antitoxic substance, having a special affinity for the toxin, neutralized a part of the latter, which has been assimilated by the renal cells.

Mixed infections in diphtheria are important in the discussion of the etiology and pathology, for two reasons: 1. It is because of this occurrence that there is still a considerable number of clinicians who do not consider the Klebs-Löffler bacillus as the sole cause of diphtheria. 2. Much of the hostility to the use of antitoxin depends upon the lack of success attending its use after mixed infection has set in. It is now well known that an increase in the virulence of the diphtheria bacilli occurs when associated with streptococci.

Thomas, in careful observations made on one hundred and ten cases in the Nursery and Child's Hospital, New York, where forty-six cases of diphtheria occurred reports that the one hundred and thirty-six non-diphtheritic children immunized were inoculated with antitoxin thus:

Age.	Number.	Antitoxin units.
3 to 4 weeks	7	50
2 months	12	50 to 75
3 to 6 months	36	100
7 months to 1 year	22	150
2 to 4 years	59	200

Four children showed faint traces of albumin in the urine, but this in no case persisted more than three to four days, nor were there in any case any rational symptoms pointing to special disturbance of the kidneys. Three cases, eight days after the injections, and four cases nine days after the injections, had an eruption of erythematous patches of the size of a silver dollar, in some isolated, in others running together about the head, trunk and extremities, but in no case were they associated with any appreciable fever; in this respect markedly differing from cases that have been reported of erythematous eruptions occurring with rather startling elevations of temperature. Red, pea-shaped, shotty papules appeared rather profusely on the face, in one case on the eighth day, and in another on the ninth, and the same kind of papules appeared on the face and both arms in a third case, also on the ninth day, with no rise of temperature. In sixty-nine case out of a total of one hundred and thirty-six children immunized, the temperature rose within twelve hours from

100° to 103° F., but within the next twenty-four hours it had in all these cases fallen to the normal; the amount of reaction seemed to be proportionate to the age and to their general debilitated condition, the stronger and older ones showing little reaction.

The method of using antitoxin invented by Behring has been based on a series of facts: diphtheria is due to specific bacillus, which was first discovered and isolated by Löffler. Several years after this discovery in 1887, two French observers, Roux and Yersin, showed that the poisons secreted by the diphtheria bacillus in artificial cultures, when injected into lower animals, produced all the symptoms of diphtheria, and that in man the general symptoms attending this disease were due to the absorption of these poisons. Then in 1890, Behring published his remarkable discoveries on the action of the serum of immune animals on the diphtheria poison; the serum of a guinea pig, which had been artificially protected against diphtheria, had the power of saving any animal when it was injected at the same time with a fatal dose of the diphtheria poison; by successive inoculations he could produce a serum of great therapeutic action. But in order to apply this treatment to man it was evident that to obtain a sufficient quantity of serum in due course, larger animals would have to be used; hence, sheep, goats, cows and other large animals were artificially immunized; but he found that the best animal to use was the horse, because it could not only resist, without showing any symptoms of discomfort or illness, large doses of the diphtheria poison, but very large quantities of serum could be withdrawn as needed.

Ruffer describes his experiments as follows: A young, healthy horse is chosen; under observation for a week so that it may be properly fed up, it is then tested with mallein in order to be quite sure that it is not suffering from chronic glanders. Then a small quantity of a filtered culture of the diphtheria bacillus, viz., a quarter of a cubic centimeter, is inoculated under the skin. This of course for an animal as large as a horse is an extremely small dose, and yet one finds that even this minute quantity often causes a swelling as large as a fist in some animals, but has never produced any serious constitutional symptoms; it is often accompanied also by a rise of temperature of 1 degree, which lasts from six to eight hours. The next day, however, the animal as a rule appears to be in perfect health; after three or four days have elapsed another quarter of a cubic centimeter is injected in the same way. This then produces no symptoms whatever. At the end of the first week one cubic centimeter is inoculated, and, if it is not accompanied by any constitutional disturbance, that dose is repeated three times during the second week. Five cubic centimeters are injected three times during the third week, and in this way the dose is raised from time to time until at the end of six weeks or so the animal receives a hundred cubic centimeters three times a week. The first horse which he immunized received over two litres of toxin: it was bled five times, and was in far better condition than when it was purchased. It is of utmost importance that the animals should be kept in perfect health and in the best possible condition during that time. The treatment, if properly carried out, should never give rise to any signs of pain, discomfort, or illness in an animal so treated, and Ruffer says, "Although I have been able to immunize over twenty horses in this way, I have never seen one

show any serious symptoms."

The horse being immunized, it is necessary to bleed it for the treatment of children, and it is fortunate that the bleeding of horses is an extremely simple and painless operation. The jugular vein in this animal is extremely long and runs in the jugular groove just under the skin. A halter is put on the horse's head and if it be at all restless a turnip or carrot is given to the animal to eat. A previously sterilized cannula is then introduced directly into the jugular vein, and the blood is allowed to flow through an india-rubber tube into previously sterilized bottles. In this way, six to fifteen litres of blood may be drawn off without the animal showing any signs of weakness or discomfort. The cannula is then withdrawn, and owing to the elasticity of the walls of the blood-vessel no ligature or pressure is necessary, for the walls of the vein close over the opening made by the cannula, just as a needle may be put through the intestine of a man without any of the contents escaping. The blood thus withdrawn is then left in ice until the serum is quite separated, and when this has taken place the serum is poured off, with all aseptic-precautions, into sterilized bottles, which are then corked with sterilized corks, and sealed. A piece of camphor is generally added in case any micro-organisms from the air should have fallen into the serum during the manipulations. In order to ensure absolute safety one or more of the tubes are placed in a warm chamber at 38° Centigrade for twenty-four hours, and if no bacterial growth has taken place we may be sure that the serum is quite aseptic. It was necessary to know what was the antitoxic power of the serum, and in order to do so, known quantities of the serum are mixed with known quantities of diphtheria toxins of a certain strength and injected under the skin of a guinea-pig. If enough has been added no symptoms whatever should follow, and the quantity necessary to prevent the occurrence of symptoms will necessarily depend on the strength of the serum. Thus the serum of one horse is of strength that .0001 c.c. of it will neutralize a dose of toxin which would otherwise prove fatal to a guinea-pig in twenty-four hours. Of course it will all depend on whether the serum is inoculated at the same time as the toxin or some time afterwards. Thus, if .0001 c.c. will save a guinea-pig, if injected at the same time with the toxin, .5 c.c.—that is, 5,000 times that dose—will be necessary if eleven hours be allowed to elapse from the injection of the toxin of the inoculation of the serum. It is obvious, therefore, in a child which has been ill for some days a far larger quantity of serum is necessary and hence one finds that the dose necessary for a child varies from 5 to 20 c.c., according to the severity of the case, and the length of time which has elapsed since the onset. Experimentally it was proved that if one waits too long before the introduction of the serum no amount of serum will save the animal, and the same fact is true in the human patient.

The first statistics which we possess as to the value of the treatment were those published by Ehrlich, Kossel and Wassermann. They are as follows: Number of cases, 220; recoveries, 168; deaths, 52; or 23 per cent. Dividing these cases according to the time which had elapsed since the onset of the disease to the time when the patients were inoculated, we get the following results:

Day of Disease.	Number of cases.	Cures.	Deaths.	Cures per cent.
1st	6	6	0	100
2nd	66	64	2	97
3d	29	25	4	86
4th	39	30	9	77
5th	23	13	10	56.5
Total mortality 23.4 per cent.				

The signs that the antitoxin is exercising a good effect are, firstly, a lessening in the amount of the membrane; secondly, a notable fall in the pulse rate; thirdly, an improvement in the general condition of the patient; and fourthly, a fall of temperature in cases where the temperature has been raised. When once the exudation begins to disappear it continues to do so with greater rapidity than is usual under ordinary methods of treatment; but the pulse rate does not fall with the same rapidity with which the membrane disappears. In some cases a rapid decrease in the size of swollen cervical glands, and disappearance of cervico-cellulitis have been observed. The after-effects are sometimes unpleasant, consisting of a rash and occasionally of painful swelling in the joints.

In connection with the antitoxin treatment, there have been improved results in intubation and tracheotomy; thus Bokai, in one hundred and twenty cases treated, has sixty-three cases of laryngeal stenosis, forty-nine were intubated, with twenty-one recoveries (43 per cent.); average period of retention of tube before sero-therapy 80.5 hours; with sero-therapy, 58 hours. Perregaux, in two hundred and forty-nine cases, resorted to tracheotomy in thirty-nine (fourteen death), and intubation in eighteen (secondary tracheotomy in six, seven death). Sevestre and Meslay, in eighty-seven cases, in which the larynx was implicated, did tracheotomy in eighteen, and intubation in nine only, and yet there were only eleven deaths in the whole series. Heuber, in reporting one hundred and eighty-one cases of pure diphtheria, states that with regard to the invasion of the mucous membrane, it was found the larynx and trachea were affected in sixteen only; but the larynx was never involved, nor were false membranes reproduced in sero-therapized cases. A comparison of observations before and after sero-therapy brings out two important points, viz., attenuation of the fever, and early expulsion of false membranes. Of sixteen cases in which the larynx was affected before infection, it cleared in nine without operation under sero-therapy.

Rauchfuss reports that in many cases the larynx cleared spontaneously. Widerhofer, in three hundred patients, had one hundred and eight-one cases of laryngeal stenosis; of these twenty-two recovered spontaneously, fifty-one were tracheotomized, one hundred and eight intubated, with 50 per cent. recoveries. Ranke, out of ninety-five cases of diphtheritic croup, found that in twenty-seven the laryngo-stenosis disappeared soon after the first injection; formerly the spontaneous disappearance of laryngo-stenosis occurred in only 5 per cent. of his cases. The value of the serum treatment shows even more than these statistical figures, in the change in the clinical course of the disease; under the influence of the serum treatment diphtheria loses its progressive character, and this comes out most remarkably in regard to diphtheritic laryngo-stenosis.

The three factors to produce mortality are: 1. A still greater improvement in the production and selection of the remedy. 2. The general and hearty acceptance of the established principles underlying sero-

therapy. 3. The employment of the remedy upon a purely rational basis. Binder studied the effect on the blood of the administration of antitoxin by the mouth. Healthy children were so treated, and their blood-serum twelve and twenty-four hours after was obtained, with the result that only in infants could a slight increase in the antitoxic property of the blood-serum be noticed. The conclusion is reached that this method of administering antitoxin will not produce sufficient protection in the treatment of diphtheria.

I will close with the description of a rash occurring in a case of diphtheria due apparently to the injection. The child had its body overrun by a multiform rash; this set in on the fifth day in the shape of round spots of a pale-red color on the hands; the efflorescence crept up along the arms and took possession of the body and legs, the spots coalescing into large patches and serpiginous, more or less circular figures, resembling both urticaria and scarlatina. No better name for it exists than "exanthema multiforme"; it has been frequently described of late as the result of injecting cases of diphtheria with Behring's serum. This case is very instructive in regard to the vexed question as to whether the rash is an effect of the injection, or in many instances, a mere coincident complication owing to the primary disease, diphtheria. Years ago, before any one dreamed of injecting serum, Baginski described this rash among the symptoms of diphtheria in his text-book on children's diseases: "In some cases there appears spread over the whole surface of the body a pale reddish exanthema (erythema), forming irregular spots of various size, not prominent above the adjoining skin level; or one observes instead a rash of a dark rosy tint, closely resembling the well-known exanthema of cholera, found most often on the extremities, and composed of jagged patches, somewhat irregular and often confluent. I have observed exquisite examples in very grave cases, however, ultimately recovered. Though accompanying a general infection, they are not to be regarded as septic exanthema." Such rashes may occur independently of any injection and cannot be blamed on the use of antitoxin.

Suggestive.—The *Canada Medical Record*, after thirty-two years of publication, has ceased to exist; reason, lack of funds. The publisher says that out of his one thousand subscribers not fifty paid the paltry annual fee of one dollar! No wonder the journal collapsed, and why it did not do so before is incomprehensible. Subscribers do not seem to appreciate the fact that printers must be paid promptly, and that it costs a lot of money as well as mental and physical effort to publish a medical journal. The *Record* was a clean, well-edited monthly, was well worth five times the subscription price, and but for its advertising, could not have been afforded for anything like the price at which it was issued. This is not a case of "survival of the fittest," for the *Record* deserved a better fate.

This episode will serve as a reminder to other publishers that they, too, are being neglected by their subscribers. The readers of a medical journal forget that the midnight oil is enabling a busy editor to afford them pabulum for thought and, perhaps, help in a critical case, when they nonchalantly glance over the pages, which have cost time, energy and some gray matter to produce. The last they ought to do is to pay up, so that those who are responsible for the expenses of a publication may be saved the anxiety of bankruptcy.

DIGESTION PRACTICALLY CONSIDERED.

BY T. F. HALE, M.D.

DIGESTION was regarded in the middle age as a cooking process effected by the heat of the stomach, but now we know that it begins in the mouth and ends in the lower part of the ileum while vicarious digestion can be carried on in the rectum for a time.

Our present theory of digestion regards it as a chemical process, to which can be added the vital theory—a term good to use, for the process seems to be beyond the explanation of mere chemical reactions. The saliva now bears an important rôle, for first comes the mechanical division of food and its mixture with saliva. The chemical composition of saliva is water ninety-nine and a half per cent. ptyalin one-tenth of a per cent.; sulphocyanate of potassium with the salts of magnesium, calcium and sodium, two-tenths of a per cent. and organic extracts and serum albumin, two-tenths of a per cent. So in every hundred drops of saliva we have one drop of its active principle ptyalin—and as the amount of saliva varies from one to four pints a day, the amount of this principle is considerable.

Saliva converts all starches found in cereals, vegetables, etc., into dextrin, maltose, and finally into dextrose or glucose, in which state alone can starches and sugars be absorbed. It is allied to cane sugar and subsequently changed into glucose, by the ptyalin. Ptyalin, a chemical ferment of nitrogenous composition, converts starch into glucose without undergoing any change itself or suffering any apparent diminution.

The ferments of all of nitrogenous composition, capable of producing fermentation without themselves suffering change or diminution, can be divided into two classes—viz., 1, organized, and 2, unorganized ferments.

Organized ferments.—The organized ferments are divided into three kinds: Mould plant. Yeast plant. Bacteria. Mould plants are microscopic fungi, long, cylindrical cells adhering one to the other; attacking solids by honeycombing them and floating on liquids. When mould plants cease growing they dry up, and from their own material grow a long stem with a capsule. This contains the spores, which are readily diffused when the capsule breaks. To this organized ferment is due all the mildewing and much decomposition and decay. Yeast plants belong to a lower order of life, consisting of simple cells with walls of cellulose. Each cell has two or three nuclei. The yeast plant is the active agent in vinous and alcoholic fermentation. A number of varieties of bacteria are always present in the alimentary canal, from the mouth to the anus. They create a ferment—probably alkaloidal in nature—which changes proteids into peptones, etc.

The unorganized ferments are divided into (1) amylolytic, (2) proteolytic, (3) invertin, (4) steapsin, and (5) curdling ferments. 1. Amylolytic ferments are such as ptyalin in saliva; amyllopsin in the pancreatic juice; diastase in malt, converting starch into dextrin, maltose, and glucose; the liver ferment, a diastase, turning glycogen into glucose. 2. The proteolytic ferments are such as pepsin, in the gastric juice; trypsin, in the pancreatic juice; and papain, in the papaya fruit; which convert proteids or albuminoids into anti-, hemi-, and parapeptones. Papain is now extracted from the Indian fruit and sold under the name of papoid, a vegetable ferment similar to pepsin in its action. 3. Inversive ferments (invertins) convert cane sugar or sac-

charose into dextrose (glucose grape sugar, and laevulose (fruit sugar). This ferment is found in the succus entericus and in the mucous of the stomach. 4. Steapsin is found in the pancreatic juice; its action consists in the emulsification of fats and oils, breaking them up into fatty acids (oleic, palmitic and stearic) and glycerin. Lecithin and cholesterin are the ultimate fatty products. 5. Coagulating ferments, Rennet or milk-curdling ferment, found in the pancreas and in all infants' stomachs; fibrin-forming ferment, found in the blood, lymph and chyle. Myosin is the ferment producing coagulation of the muscle juices (rigor mortis) in a few minutes to many hours after death, according to the mode of death and the condition of the muscle. In wasting diseases, on the contrary, rigor mortis is delayed for many hours. Rigor mortis is due to the coagulation of the myosin, the juice in the muscular system, on the same principle that rennet coagulates milk. In regard to the reaction of salivary digestion: pure saliva from the parotid gland is alkaline, while the secretions from the mucous glands of the buccal cavity are acid. When the two are mixed the whole becomes slightly alkaline. To separate ptyalin from the parotid; triturate the gland with sand. Precipitate with alcohol and make an extract with pure glycerin. Alcohol precipitates all proteids, and with them the nitrogenous ferment ptyalin, the glycerin dissolving the ptyalin ferment only.

From these facts we learn to masticate our food well, that it may become thoroughly insalivated and the starch converted into dextrin, maltose and glucose. The salivary glands of children do not develop and become functionally active until about the sixth month; hence, we see the ill effects of giving infants under this age starchy food which they cannot render soluble and capable of absorption. In cases of dyspepsia, the saliva often becomes acid, and starch cannot be converted into glucose in an acid medium, therefore in many cases of dyspepsia, saliva-digestion is nil, leading to intestinal indigestion, a fact not readily recognized by practitioners. Tobacco is injurious, for it leads to excessive expectoration, which uses up the saliva. This is especially true of "chewing." Gum-chewing is likewise unhealthy, as the salivary glands are constantly secreting. The saliva is also swallowed and besides being used up, its loss interferes with gastric digestion.

The following are the results of Binet's experiments upon animals with reference to the elimination of various substances by the stomach after their subcutaneous administration; alkaline bromides and iodides pass rapidly into the stomach, and continue to be excreted in this manner for several days, while the chlorides only appear in the gastric contents when given in large doses. Hypodermic or intravenous injection of tartar emetic is not followed by the appearance of the drug in the stomach; lithium and magnesium are eliminated in small quantities, but strontium not at all. Organic bodies, such as salicylic, gallic acids, guaiacol, antipyrin and chloral, cannot be detected, but certain others show slight traces of their presence. The alkaloids—morphine, quinine, strychnine and atropine—pass into the stomach in small amounts. Heuber found that in twenty-seven out of twenty-eight children less than nine days' old the salivary secretion exhibited diastatic properties, while in one case ptyalin was detected in the saliva within the first twenty-four hours of birth. The pancreatic secretion in children less than three weeks'

old had no action upon starch. Jacobi administered starchy foods to children instead of milk, and afterward submitted the feces to a chemical examination, in order to determine the relative amount of sugar and undigested starch which they contained. An analysis of the excreta of a child seven weeks old, who had received 30 grams of rice flour in twenty-five hours, proved an entire absence of unaltered starch; while another child completely digested as much as 40 grams of starch in eighteen hours.

The gastric capacity of man is from sixteen to thirty-two ounces, and during rest or when the food has been digested its contents are alkaline from the gastric mucous; but the moment food or drink is introduced or thought of eating occurs, the gastric juice becomes acid. There are two sets of gastric glands, the peptic and the mucous. The peptic glands being found throughout the whole interior of the mucous membrane excepting at the pylorus, secreting two important substances. The small "granular" cells secrete a zymogen called pepsinogen, from which pepsin is elaborated, and the larger or "peptic" cells secrete the hydrochloric acid. In digestion the granular cells are actively secreting "pepsinogen" and elaborating pepsin and the mucous glands are inactive, but as soon as the food has left the stomach the peptic glands stop secreting and the mucous glands pour out their alkaline secretion to neutralize the acidity. The stomach produces from ten to twenty pints of gastric juice in twenty-four hours, of which amount from two-tenths to two per cent. is free hydrochloric acid. Gastric juice, limpid, acid, odorless, has a mawkish taste, with a specific gravity 1002. The ferment we call pepsin belongs to the unorganized variety, and may be easily extracted by soaking the mucous membrane of a stomach in cold water for one hour, and then macerating it in warm water at 100° F. for two hours; the cold water dissolves and removes the mucous, while the warm water dissolves the pepsin, which is readily precipitated from its aqueous solution as grayish-white flocculi by absolute alcohol; by evaporating the alcohol the pepsin remains. A strong glycerin extract may also be made by soaking the mucous membrane in absolute alcohol, removing the water. Then treat it with pure glycerin, which takes up the ferment only, as with ptyalin. The gastric juice digests all nitrogenous food, such as meat, eggs, bread, milk, etc., called proteids; by means of the pepsin ferment and the hydrochloric acid these are converted into anti-, hemi- and parapeptones, or albumose, and finally peptones. The peptones, or antipeptones proper are rapidly absorbed through the blood-vessels in the stomach by means of osmosis. The stomach also absorbs water, wine and such fluids, but the hemipeptones and albumoses are converted by the pancreatic juice into leucin and tyrosin. The gastric juice has no effect on amylaceous and oleaginous articles of food beyond dissolving them in the chyme, while starches are not acted upon at all. Cane sugar becomes hydrated by the gastric mucous and transformed into glucose, the only state, in which sugars can be absorbed. Gastric juice is also antiseptic, preventing or checking putrefaction, as can be seen in eating "high" game, for fashion says that quail and other birds shall hang in the cellar until the meat is ready to drop from the bones, in plain terms, putrefaction sets in with the millions of bacteria which every such piece of game contains. As Anderson says, should any

part of these putrid carcasses enter our circulation through any other avenue than the stomach, no one would live twelve hours after eating quail, but the gastric juice converts these decomposed articles into absorbable peptones.

When it comes to the discussion of the time taken in digestion we find that barley soup, raw eggs whipped, trout, tripe, brains, venison and boiled milk, with the serum-albumin removed, are digested in from one to two hours; roast beef, lamb, mutton, turkey, chicken, in about three hours; salmon, veal, duck, cabbage and pork, in from four to six hours, according to the condition of the stomach. Boiled milk is more easily digested besides being vastly more wholesome than raw milk, and the bacilli tuberculosis which milk may carry from the cow to the human body, will be killed; so will the pathogenic bacilli of cholera, typhoid fever, diphtheria, scarlet fever, etc., and the impurities in the milk under our present system of milk-supply will have been purified by fire. To make boiled milk more digestible than raw milk, skim off the thin film which forms on the surface of boiled milk as it cools; this is coagulated serum-albumin, of which milk contains about one-half of one per cent. When this is removed, boiled milk is not so constipating, is more easily digested, is more wholesome, and free from disease-laden germs. Recommend this procedure unless you are sure of getting pure milk. The average time in which a meal is digested is from three to four hours, depending upon the time since food was last taken, its quantity and quality, the state of the stomach and the state of the mind. A fit of indigestion can be induced by sudden fear, anger or other emotion, due to the inhibitory action of pneumogastric and the sympathetic system checking the secretion of gastric juice. A chronic dyspeptic must dine in pleasant company. Whether lactic acid or hydrochloric acid was found in stomach digestion has been a great problem. One chemist would find lactic acid and no hydrochloric acid, half an hour after digestion began; another chemist would find both lactic and hydrochloric acid about one hour after eating; and a third would find only hydrochloric acid from one to three hours after taking the meal. All three were right, for from ten minutes to forty-five minutes after eating, the acidity of the contents of the stomach is due to lactic acid and hydrochloric acid cannot be demonstrated; but in about one hour hydrochloric acid begins to predominate, and from this time on lactic acid cannot be demonstrated. Lactic acid is probably not secreted by the stomach, but depends upon the acid salts in the food, whilst hydrochloric acid comes from the peptic glands in the stomach.

The hydrochloric acid in the gastric contents is in too small a quantity to react satisfactorily to ordinary tests, and one of the delicate chromatic reactions is necessary. The most delicate as well as the most satisfactory in my hands is that known as Boas' test: taking resorcin five grams (seventy-five grains), can sugar three grams (forty-five grains), and dilute alcohol one hundred cubic centimetres, heat a few drops of the test solution with a few drops of the stomach filtrate in a porcelain capsule; if hydrochloric acid be present, a bright red ring appears at the edges of the fluid. The amount of lactic acid in the stomach must be small; it is often necessary to evaporate a pint of the filtrate down to an ounce, in order to concentrate the amount of available acid present for reaction; this

acid with dilute ferric chloride gives a yellowish coloration and by adding a few drops of carbonic acid to this we obtain Uffelmann's amethyst-blue.

According to Boas the reaction described by Uffelmann for the detection of lactic acid is open to objections, since glucose, alcohol, oxalic and citric acids produce a similar coloration of the test solution, while the presence of hydrochloric or phosphates in the contents of the stomach tends to obscure it. He, therefore, proposes to employ a method for the detection and quantitative estimation of lactic acid, which depends upon the fact that when a solution of the acid in question is heated with oxidizing agents, aldehyde is liberated; the latter being easily recognized by means of an ammoniacal solution of silver, which deposits a metallic precipitate in the presence of aldehyde. Again in the chemistry of the stomach, the formation of sulphuretted hydrogen is the subject of an interesting article by Zawadzki, who sums up his opinions on the subject as follows: In pronounced gastroectasis the stagnant albuminoids undergo putrefactive changes in spite of a high degree of acidity of the contents. This happens, however, only after prolonged retention of the food in the stomach; even after twenty-four hours retention no sulphuretted hydrogen may occur in such a patient. Even large quantities of putrefactive products cause little or no injury to the general condition, the cause of this self-preserving power being unknown. Writing upon this subject, Boas points out that the presence of sulphuretted hydrogen in the stomach contents chiefly occurs in functional disorders of the stomach, being almost unknown in cases of cancer. There exists a strong antagonism between the production of the gas and the lactic fermentation, since these products of food decomposition are never found in the stomach simultaneously.

When butter is heated to 212° the fat-globules break and butyric acid is generated; the same fact is true of other fats and oils. This is a frequent cause of dyspepsia in boarding-house and restaurant-fed people; this teaches us to avoid heated grease and "butyric acid dyspepsia."

The absence of hydrochloric acid in the stomach one hour after a meal has been made use of as a means of diagnosis, in carcinoma of the stomach and certain other pathological conditions. Its absence is less constant in atrophic dyspepsia, in amyloid degeneration, in Addison's disease, in pulmonary tuberculosis, in poisoning or corrosion and loss of mucous membrane, and in mucous catarrh, in which the mucous glands are hypertrophic and produce an excess of mucous, with consequent degeneration of the peptic cells which secrete the hydrochloric acid. In nervous or mental dyspepsia, hydrochloric acid is also frequently absent in part, while in gastric ulcer, hydrochloric acid is always in excess. This is a valuable diagnostic point, for suppose a patient is vomiting the so-called "coffee-ground" material, containing blood. The diagnosis rests between cancer and gastric ulcer. A want of hydrochloric acid would indicate cancer, and an excess is pretty certain to indicate ulceration.

Contrary to ordinary belief, bile direct from the liver is neither green nor bitter, but a bland golden yellow. The greenish cast in man and the bitterness, as well as its viscosity, are due to the admixture of mucous from the gall-bladder. Bile is neutral or lightly alkaline in reaction, and has a specific gravity of 1020; from

twenty to forty ounces being secreted daily. It is formed in the hepatic cells and secreted continuously; stored in the gall-bladder it enters the duodenum by the common duct. Its emulsifies and saponifies fats and oils, the distinction being that an emulsion is a finely sub-divided mixture of fats and water with a suitable vehicle while saponification is a chemical formation. An oil or fat is made up of the triatomic alcohol glycerin with one or more fatty acid radicals. When an alkali is added to a fat and heat is applied, the oil or fat is split up into glycerin and its fatty acids—oleic, palmitic, or stearic. The acid combines with the alkali and forms a soap—an oleate, a palmitate or a stearate of potassium or sodium, according to the alkali used. The glycerin floats on the top. Bile is antiseptic, and purgative, precipitating the pepsin and para- and hemipeptones in the chyme as they come from the stomach to allow the pancreatic juice to finish digestion in an alkaline mixture. The glycogenic function of the liver is a large problem; the chemical question is too lengthy for consideration in such a paper as this. Glycogen is manufactured by the liver-cells from proteids as well as from amyloids, and by means of the liver-disease it is changed into glucose for muscle activity. The intestinal juices are produced by the glands of Brunner in the duodenum and the glands of Lieberkuhn in the small intestine, while the succus entericus possesses peptogenic properties, especially the secretion from Brunner's glands, which converts proteids into peptones. Lieberkuhn's glands convert starches into sugar. The intestinal juices also hydrate cane sugar and convert it into glucose. They turn grape sugar into lactic and afterwards into butyric acid. They possess milk-curdling properties. The pancreatic juice is amylolytic, proteolytic, inverse, steaptic milk-curdling. It is alkaline in reaction and enters the descending duodenum two and a half inches from the pylorus. It is a mistake to drink no liquids when eating. The gastric juice cannot handle a large meal nearly so well nor so rapidly if it is taken dry. The system requires about four pints, or sixty ounces, of fluid in twenty-four hours, and food is much more easily digested and absorbed when from six to eight ounces of liquid are taken with each meal. For this reason a plate of hot soup is excellent before eating, but a cup of hot water does very well, starting the juice and dissolving the food. Ice-water is injurious, producing a well-marked dyspepsia, rather difficult to cure; but ices taken during a meal or afterwards perhaps do good, for they suspend digestion only for a moment. Alcohol is a good diffusible stimulant in small quantities, and is not needed daily during health, for taken daily it acts as an irritant to the mucous membrane of the stomach, and should always be given largely diluted. Taken daily for any length of time it is certain to irritate not only the stomach, but also the liver, kidneys, blood-vessels, and even the brain, setting up a slow or chronic hyperplasia of the fibrous and connective tissues, which is certain sooner or later to be productive of considerable mischief. Some of the worst cases of gastric catarrh, with morning vomiting, loss of appetite, chronic congestion of the capillaries, reaching even to the nose, are to be found in persons addicted to the habitual use of alcohol.

Three distinct varieties of gastric derangement are associated with tubercular disease of the lung; the first is apt to precede the development of the pulmonary complaint for a considerable time, and either partakes

of the nature of an "atonic" or "irritable" variety of dyspepsia. Both are characterized by anemia, loss of flesh, and intense dislike to meat-fat; but the gastric symptoms of the atonic cases chiefly consist of epigastric discomfort after meals, with flatulence, nausea, and constipation; while those of the irritable form comprise acidity, and severe vomiting, during the recess of digestion. Both varieties may give rise to rapid emaciation, and even terminate fatally from exhaustion. The phthisis commences insidiously, and is prone to run a protracted course in the atonic variety, but is usually rapidly progressive in those cases in the atonic variety, but is usually rapidly progressive in those cases which have long suffered from the irritable form of the dyspepsia. In a large proportion of all cases of tubercular diseases of the lungs symptoms of disordered digestion accompany the onset of the pulmonary complaint; women are more affected than men, and usually suffer from flatulence and vomiting, while men are more prone to acidity and epigastric pain. Dislike to fat is one of the earliest symptoms, and in a large proportion of the cases saccharine substances are found to give rise to indigestion. Vomiting is almost always a prominent symptom, and occurs either in the early morning, or as the result of the indigestion of food; in the former case resulting from an attack of coughing, which has for its object the expulsion of the sticky mucus that has accumulated during the night in the bronchial tubes.

Another neuropathic disorder of the digestive organs in childhood has been described by Fenwick, under the title of the "Dyspepsia of Strumous Children," more common in girls than boys, it appears to be intimately connected with the tubercular diathesis; usually beginning at the age of five, it is characterized by recurrent attacks of pain in the abdomen. The pain arises from a spasmodic contraction of the colon, and is readily excited by the ingestion of hot food, or by mental and physical fatigue. Generally, the child exhibits an intense dislike to fat, and in many instances saccharine substances also disagree. As a rule the bowels are constipated, but occasionally lienteric diarrhea is a well-marked feature of the case; the pain being sometimes so violent as to cause faintness. The most appropriate treatment consists in the regulation of the bowels by means of cascara and maltine, and administration of small doses of iron combined with belladonna.

Dujardin-Beaumetz, on the value of the bicarbonate of soda in dyspepsia, lays down the following rules: (1) In cases of subacidity, the drug should be administered one to one and a half hours after the meal; while in hyperacidity, it must be given either during the meal or two hours after it. (2) In cases of atonic dyspepsia, where there is a tendency to stasis of the food and dilatation of the stomach, the drug should be given during the meal or one hour later. (3) The most useful natural alkaline waters are those which contain the greatest amount of bicarbonate of sodium. Reichmann has investigated the action of the drug, by causing it to be administered to healthy persons at various periods in the process of digestion, and afterwards aspirating the contents of the stomach. The results of these experiments upon the human subject are at variance with the foregoing. They are shortly as follows: (1) When bicarbonate of sodium, dissolved in water, is introduced into the fasting stomach, it

exerts no effect upon the gastric secretion. (2) When a meal follows the administration of the salt, the gastric secretion is not affected one way or the other. (3) When the alkali is given after the food, the acidity of the gastric juice is diminished in proportion to the amount taken. (4) Continuous administration of the drug in these several ways exert no effect upon the functions of the stomach. (5) Long continued use of the salt exerts a tonic action upon a weak gastric mucous membrane.

Subnitrate of bismuth introduced into the stomach produces an excessive secretion of mucous; the movements of the organ subsequently tend to distribute the powder over the whole of its inner surface. Large doses of the drug are recommended to be administered in a tumblerful of water in the early morning before breakfast. According to Fleiner the mucous membrane of the stomach can be completely dusted over with bismuth in a very simple and effective manner. The organ is first washed out with a dilute solution of bicarbonate of sodium in order to free it from excess of mucous, and then 4 drams of the subnitrate, suspended in 12 ounces of water, are introduced into the stomach through a soft tube. Ten minutes are allowed for the salt to settle upon the surface of the organ, and the supernatant fluid is then siphoned off. The results of this method of administering the drug are said to be highly satisfactory. Singer asserts that rectal feeding is not sufficiently made use of; after referring to the rapidity with which absorption occurs from the rectum, he laments that rectal feeding is not more extensively employed in diseases of the digestive organs. He strongly recommends a nutritive injection equal in volume to 6 ounces, and consisting of 3 ounces of milk, the yolk of 2 eggs, with a small amount of peptone and sugar. The enema should be introduced high up into the bowel and repeated three or four times a day. Should symptoms of intestinal irritation become present, a few drops of laudanum may be added to the injection.

Atropine in ophthalmic practice: The indications are—in correcting errors of refraction in patients under forty; in spasms of accommodation with a resulting apparent myopia; in convergent strabismus, due to an excessive degree of myopia in its early stage; in diagnosing posterior synechiae and seclusio pupillae; in keratitis and various other inflammatory conditions, being antiphlogistic and relieving the congestion; in corneal ulcers; in diseases of the iris and of the ciliary body; in diseases of the sclera, wounds and recent injuries; in diseases of the uveal tract, choroiditis, and retinitis; and in circular iridodialysis. This drug is contraindicated (*A. Brav, Medicochirurgical Journal, Jan. 20, '05*) in glaucoma; in refraction cases over forty; in cyclitis; ulcers of the cornea with impending perforation; and in radial iridodialysis, with children atropine must be exhibited with great care and caution; the child must be watched for dryness of the throat, flushing of the face, nausea, accelerated pulse, redness and swelling of the lids. Atropine, when used, should be uncontaminated; neutral in reaction, not strong; when using it the lachrymal sac should be compressed or the lid everted, so that the residue may not pass to the nasal membranes and be absorbed unduly; the solution should be aseptized by a fraction of bichloride, especially when used in inflammatory conditions; no more than three drops should be instilled—in children one drop.

A FACTOR IN THE ETIOLOGY OF THE BACKWARD SCHOLAR.

BY ELLICE M. ALGER, M.D.

OPHTHALMOLOGIST TO THE NEW YORK DISPENSARY; INSTRUCTOR IN OPHTHALMOLOGY AT THE POSTGRADUATE MEDICAL SCHOOL.

RECENT statistics of the New York public schools show that from twenty-five to fifty per cent. of the pupils are too old for the classes in which they are being taught. This might be easily explained on the theory that a very large number are children of foreign birth who enter school later than is contemplated by our system, but that this is not the true explanation is shown by the alarming fact that the percentage of backward children increases each year during the first five years. In the first year they constitute twenty-three per cent., while in the fourth and fifth the proportion has risen to forty-nine per cent., and from that time on never falls below twenty-five per cent. This can be explained only on the ground that at least one child in every five or six fails of promotion, which practically means that he has failed to acquire even the fundamentals of an education. We have all seen children born in New York and nine or ten years old who have been in school two or three years and yet cannot distinguish the letters of the alphabet. School authorities explain this condition by saying that such children are of foreign birth or parentage and remain in the lower classes because of their ignorance of the English language, but the only reason for their staying in the lowest grades indefinitely is either the neglect of teachers or absolute inability to learn. Unfortunately human nature is such that the neglect only too often follows the inability.

Good eyes and ears are practically absolute essentials to the acquisition of knowledge and are proportionally more important in the primary grades than later on. From observation of a very large number of foreign-born children who frequent the New York Dispensary I am convinced that not only are defective eyes very common, but that owing to malnutrition and neglect, these defects are much more serious on the average than among native stock. Observers here and abroad have for years been harping on the frequency of optical defects, but as yet neither the general public, the educators nor even the medical profession as a whole, appreciate that ocular conditions among children not only account for an immense amount of physical suffering expressed or dumbly endured, but also cause tremendous variations in psychical development.

The near-sighted child can, as a rule, derive slight benefit from the blackboard and class exercises which modern educational methods have devised to facilitate individual instruction and is dependent on the occasional help of the overworked teacher. This lack is especially felt during the first few years of school. Later on, when information can be derived directly from books by dint of hard work, he is at no such disadvantage, and not infrequently becomes a bookworm, but he nevertheless often loses tremendously by reason of his defect. The near-sighted child not only fails to have his childish imagination stimulated by the beautiful things in nature but becomes actually stunted by the constant limitation to the sordid things near at hand. The leaves and flowers in the park cannot possibly seem as real to such a child as the peanut shells on the walk and in time he insensibly adopts the view that in this life the shells are the real things.

Spiritually he is often in worse case than the blind child who dwells wholly in the domain of the imagination. Education he can and generally does get, but unless his imagination is stimulated through his books he insensibly grows up a mean and sordid individual, whose mental sight is coextensive with his physical, and bounds his world by the few inches beyond his nose. His defect may be corrected but unless it is done early in life it is of no effect. He sees the trees but as aggregations of leaves and the stars but as points of light and for him space has no suggestion of infinity. His world is close at hand.

Even worse off is the child whose sight is impaired by astigmatism or the opacities which often result from disease or neglect. With his distant vision as poor as that of the myope he suffers the additional disadvantage that near objects are either distorted or spotted by the constant shadow of his opacities.

Doomed often from childhood to mental obscurity he yet has enough vision to deprive him of that sympathy and help we extend to the blind. He sits several years in school without promotion, the *bête noir* of his overworked teacher and the butt of his better equipped mates and earns a reputation for stupidity and ineptitude which is commonly borne out by his later years. Only too often the condition is beyond the help of the physician and it is a physical impossibility for the child even to learn to read: so that he is definitely cut off from the avenues of mental resource. After trying in vain to master things which are within easy reach of his mates he ceases to try and incurs a dislike and neglect on the part of his teachers which he fully appreciates. He becomes sullen and ugly. After failing of promotion several years in succession he finds himself the biggest boy physically in the class and he proceeds to avenge the neglect of his teacher and the jeers of his mates. He becomes a bully and a tyrant of smaller boys. When school days are over his eyesight debars him from everything except the very coarsest kind of manual labor and he often becomes the juvenile criminal. Our reformatories and prisons are full of criminals of this type and even here their defective vision follows them, since they are capable only of crimes of the sort which are easiest detected and heaviest punished.

There is another type of scholar which will be recognized by the physician but which seems to be entirely misunderstood by both teachers and parents. This is the child who has splendid sight, is easily interested in things and learns readily, and his parents can only account for his failure to do well at school by the theory of deliberate neglect on the part of teachers.

At school he begins the day well enough and is admittedly bright, but has the reputation of being idle, lazy, mischievous, soon tiring of his work, and needing constant prodding. He is supposed to suffer from an excess of animal spirits. The difficulty is that while his eyes are keen enough for the transient observation of distant objects, they are very much strained by constant close work at a desk. He begins the day well enough, but within a couple of hours his tired eyes begin to wander from his task. If he is conscientious or closely watched each afternoon finds him with more or less pain in his eyes or a dull headache which becomes so much a part of the school routine that it is rarely complained of, but insensibly classed with other things which make school life disagreeable. Such a child cannot possibly have the pleasure in learning

or the interest in his work which the normal well-taught child should have; neither does he have the normal child's delight in stories of romance and adventure. Naturally he does not make normal progress with his books and often misses promotions unless his natural brightness prompts him to acquire by tricks or stealth what he fails to accomplish by industry. As he gets older the same dislike of books persists and he leaves school at the earliest possible moment, selecting some occupation which shall be as little confining as possible. He enters life handicapped by a deficient education with tastes warped away from their path and with very limited resources in the way of mental recreation and self-amusement. Even if he escapes actual disability and suffering he finds the same handicap awaiting him at every turn till finally his sight fails beyond the useful limit and he finds relief in glasses.

We have no reliable data as to the exact proportion of children having eyes which should be classed as abnormal, the number depending entirely on the standard adopted. If we judge eyes as exactly as camera lenses we shall hardly find a normal pair in the entire school population of New York, while on the other hand, if we consider eyes normal because the child can see the blackboard from the back seat, we shall overlook a large number of children whose eyes are potent causes of idleness and inattention and only too often of actual suffering. The situation calls for the exercise of tact and common sense even more than skill. The public schools are not the proper fields for the exploitation of ophthalmological fads, for they are already overcrowded with educational ones, and the functional examination of the eyes is often a very complicated matter involving points on which even authorities are not of one mind. But it would be perfectly reasonable to adopt as a minimum requirement that a pupil have a distant vision approximating the normal in one eye at least and that he be able to do the ordinary school-day's work without discomfort or fatigue. If he falls below this standard in either particular he should have his eyes carefully examined. Furthermore, it would be decidedly good policy to have the eyes of all backward children examined as a matter of routine, to say nothing of the pupils suffering from headaches and nervous phenomena. The question of the appropriate treatment of individual cases must be left to the good sense of the examiner, who must decide whether nervous symptoms are due to ocular conditions or not and whether the abnormality can be corrected by glasses or by operation or by both, and whether possibly improvements in the vision of a defective eye may not simply substitute for comfortable use of one eye a tormenting diplopia with two. The problems are innumerable and often insoluble, and complicated as they frequently are by ignorance, poverty and even filth, they are only to be worked out by the patience, tact and skill, which are so commonly exemplified by the employees of municipal departments.

31 East 30th Street.

Vaccination Laws Upheld.—The New York State Court of Appeals has decided that the section of the Public Health Law relating to the vaccination of school children must be enforced. This law states that "No child or person not vaccinated shall be admitted or received into any of the public schools of the State."

The Medical Times.

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FOUNDED BY ROBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

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The years teach much which the days never know.
—EMERSON.

LABOR-SAVING DEVICES IN LITERARY WORK.

UNDER the guidance of C. S. Minot, the belief is growing among many prominent physiologists that our bodies are storage-batteries, which contain a definite amount of energy. This energy may be made to last over a long period of years or burned up quickly in the feverish haste of modern life. The point made by these physiologists is that in either case the same amount of work has been accomplished.

According to these views "life," as we term it, is merely an impetus given to an organism at its birth. It is impossible in an editorial to go over the work of Minot beyond saying that he found that the rate of growth in guinea-pigs diminished from the time of their birth onward in a regularly decreasing scale, and he raises the larger question whether the activity of animals was not stored up in a similar manner. "Killed by overwork" is an every day expression; it simply means that the storage battery was exhausted and nature permits no recharging. Ex-Provost Pepper, of the University of Pennsylvania, a man of most extraordinary, overwhelming activity, dies of "heart trouble," at fifty-five; with care he could have done as much work, or possibly more, for haste means waste, and lived to be seventy-five or eighty.

We are now admonished by Professor Osler, that man after forty is unimportant and after sixty unnecessary, viewed in the broad light of the average world work. We have no desire to add any literature or criticism to an article which was written for young men commencing life and not intended to go further, so the brilliant professional idea will only serve to admonish us that anything that lightens labor, lengthens life and increases production. If a man has only a certain definite capital for his business, he must guard it jealously to see that it goes as far as possible. So with life—the human machine must run easily with the least

possible friction. The invention and introduction of the various devices for saving time and lightening labor have had the effect of lengthening the average duration of life; this has been the most distinguishing characteristic of the age. It is seen in every branch of work from the linotype machine to the self-binding mowers and reapers.

Turning from the mechanical to the literary world, we are at once struck with the lack of progress which this worker has made to lighten the mechanical side of his labors. The term "literary man" is used in its broadest sense to include everyone who uses his brain for composition, whether it is the business man dictating a letter, the physician writing his articles or his books, the reporter writing an account of an accident, or a poet transcribing his latest vision. There was given some years ago an account in one of the illustrated magazines of the reporting of the inauguration of a president of the United States. This was done by one of the most progressive of newspaper correspondents, for one of the most progressive of metropolitan journals. After collecting his material in a very rapid, skillful manner, he tells us that he went to his room in his hotel, and sat down to write out the entire account by hand, keeping a number of messenger boys on the run through the day carrying his material to the telegraph office. Finally after twelve hours of hard work, he completed his task but at the expense of his entire nervous force. Those twelve hours of severe physical work were largely wasted; on one side to the writer being a loss in time and energy expended, and on the other hand to the public in lengthening the period during which it would not hear from him again.

There are many reasons for this deficiency; in the first place, the literary man is not a mechanic and he believes the mechanical side of his work to be beneath his consideration, if he thinks of the subject at all. The amount of energy used in getting literary matter into shape has been largely overlooked or underrated. There are many serious objections to the use of the pen in composing. Thoughts come with lightning-like rapidity; the pens which express them are snails in comparison; the combination, as many writers know to their sorrow, is often disastrous; the thought is gone before the pen can reach it. This fact of the disparity between handwriting and thought accounts for the bad penmanship of literary workers; the pen chases the mind with the results that sour the temper of editor and proof-reader. A universally pretty penman is generally a person of small mental calibre, for to write with elegance, the mind must not hasten faster than the pen. Again the mere manual work involved in writing soon tires the body and fatigues the fancy, especially as the silly medieval habit of crippling the left hand, so that it cannot do its share of toil, is still in vogue among our writing masters.

Believing then, that the steel pen belongs to the days of the stagecoach and the weekly mail, let us see what facilities the literary man of the day who has his material in his mind, has for reproducing it in a form suitable for editorial scrutiny. In the first place, there is no device on earth which will think for a man or remove the drudgery of collecting his data or experiences. That part of the subject can never be accomplished satisfactorily, except by the sweat of one's own brow.

The two great methods which we have to-day for shortening the labors of composition are shorthand writing and the phonograph. There are a number of advantages in stenography but they are counterbalanced by correspondingly great disadvantages. If one does the shorthand work himself, he is compelled, as a rule either to write it out himself afterwards or dictate it to some one else for the same purpose, for each writer's own style of stenography varies enough from the typical form, generally, to be intelligible only to himself. On reflection we can see that this does not shorten the time or labor very much; it simply transfers it to some future day or to some other person for completion. When the time between the composition and publication is short, this method is about as long and fatiguing as the ordinary long-hand writing. Moreover, it is frequently impossible to keep a stenographer at one's elbow unless the work is regular and systematic. Again there is in stenography the great uncertainty of the personal element; the average stenographer may not be very well educated along the lines on which the literary man may be working and consequently sentences are omitted or their meaning twisted most hopelessly, so that the work requires constant supervision. And yet this has been the solution of the problem to the average business man; for writing short notes and the small detail of an office the average stenographer and typewriter seems fairly fitted. To the literary man who must turn out large amounts of copy the average stenographer is more or less of a broken reed. An excellent modification of this plan is the employment of a very rapid long-handed writer or of dictating directly to the typewriter; frequently the writer can school himself so that he can dictate his work without straying from his ideas at the rate of about twenty or twenty-five words a minute.

The alternative for more rapid composition is the use of the recently improved phonograph, which for many years has been but little more than a scientific toy. It was introduced into commercial life some years ago and was advertised to be the long-sought solution of this great problem. Approaching the phonograph in a very friendly spirit one is at first surprised with its efficiency in practical use for dictation. At first contact in the hands of a skillful operator, the phonograph seemed the solution of the problem of writing; after it had been used at home by the novice, it seemed nothing

but imperfections. This is the fate of all new inventions; it takes time to find the real value of a new thing.

The use of the phonograph requires a training more extensive than that needed in learning the use of the typewriter. After the recording cylinder is put in place in the machine and started on its revolutions, ready for dictation, there appears at once in the operator a sense of hurry, similar to that experienced in dictating to a stenographer but much more intense. Until he can teach his brain-cells that no space is being wasted when he is not dictating, for the machine can be easily controlled in its revolutions, the operator loses the thread of his discourse in his desire to keep up, apparently, with the rapidly revolving cylinder. It takes time and training to learn to keep one's wits from being distracted by gazing at the revolving wheels. Then it is humiliating to discover how indistinctly one seems to talk; the knack of speaking in the tube must be learned. Again only about twelve hundred words can be dictated to a cylinder before it must be cleaned off for further use; this cleaning of cylinders is an accurate, time-consuming work which is no child's play. Moreover the machine is a very accurately made instrument which must be kept in perfect order; it is not especially complicated but it demands careful overhauling from time to time. The expense of the phonograph was five years ago in itself prohibitory; it is now within reach commercially.

But the most serious objection to the phonograph, as to the stenographer, is that it requires some one to take off the dictation on paper; it is left in an unusable form by the dictator. If the writer does this himself, he of course saves no time beyond arranging to do it, at times when it would be impossible to compose. If he has it done, he quickly learns that the labor of "reading off the cylinder" is very brain fatiguing and many typewriters seem unable to stand the work. There is also some likelihood of mistakes in copying from the cylinder, although the percentage is less than in shorthand work, for the notes can be gone over any number of times.

The ideal method of using the phonograph would be to use the cylinders permanently, or at least until the material was ready to set up in type. Under this plan, editors would receive manuscripts impressed on the phonographic cylinders, place them in their own instruments and judge of the value of the articles in the author's own tones. This would compel editors to be educated to judge an article entirely by sound, without that instinctive effect which is produced by a written or printed page; if this were done the article could go from author to typesetter with a minimum of energy expended. This would be more or less of a return to the days when the oral record was the means of communication; it would be another example of the tendency of nature to travel in a circle.

THE COURSE AT ANNAPOLIS.

OWING to the need of officers in the increasing navy, it is proposed to shorten the course in the Naval Academy to three years, as a permanent arrangement. This plan seems to us most unfortunate and scarcely to be excused by the mere lack of junior officers. The Military and Naval Academies are supposed to take young boys, who may not even have had a full high school education and, within four years, to turn them out not only as technically trained officers but as educated gentlemen who may rank, in purely educational subjects, with the graduates of civil colleges. In other words, the aspirant to military or naval honors must do in four years what the average professional man does in six, seven, or eight years.

The officials in charge make no bones of the fact that they expect a considerable proportion even of those accepted at the preliminary scholastic and physical examination, to drop out because they cannot stand the strain and that the army and navy want, not average men, but those considerably above the average. It is a trifle hard on those who fail, either in the literal sense or in the sense that the strain becomes so abhorrent that they voluntarily seek relief from it. We are informed that in 1903, over 20 in a class at Annapolis were found to have visual defects in a year after having passed a similar ophthalmologic test, and that eight honor students who were in the academy at the same time, committed suicide as the result of mental strain. It is stated on good authority that a young man succeeded in getting out of the academy after his chum had been killed by a fall while reefing a sail on a practice ship. He very naturally descended to look after his friend and was treated so brutally for this infringement of discipline that he decided not to continue in so hard a school.

While appreciating the necessities of discipline, it has sometimes seemed that rather too much self-control is expected of very young men in the government schools and while the desire to secure men of exceptional attainments is laudable enough in itself, it seems doubtful whether a course which makes demands upon the physical and mental strength of the individual far beyond the limits of average tolerance, does not defeat its own ends. With all due respect to army and naval officers, it has never seemed to us that they place civilian professional men, trained according to less stringent standards, at a great disadvantage by contrast in ordinary encounter, nor that they monopolize the fame to be acquired in the various scientific lines embraced in the curriculum of the military and naval academies.

Many of the junior officers have impressed us as having exhausted their powers of advancement by the strain through which they have passed and to be incapable of doing more than the routine duties required of them.

At any rate, it does not appeal to the average civilian

as necessary to shorten the preparatory course, either by condensing the work of four years into three or by abridging the educational and technical requirements of the present. It may be wise to make the entrance requirements more advanced, for instance, by presupposing a college education, when it would seem perfectly feasible to add the purely naval training and the technical extensions of mathematics, physics, chemistry, etc., in a two-years' course.

Of course it is difficult for an outsider to appreciate the urgency of the shortage of officers which confronts the navy. War does not seem imminent; many officers are unwilling to be retired at the legal age; as a democratic people, we would like to see more promotions from the ranks; and politicians always have plenty of patriotic friends in civil life with yearnings towards the army and navy and among these there ought to be some with good general education and considerable nautical knowledge. It would seem that, somehow the navy might manage for four years without increasing the educational pressure in the academy or curtailing the instruction. By increasing the admissions to the lowest class, a large graduating class could be secured in four years, or, by admitting college graduates in a special class that would require little else than purely nautical training, an increase might be secured in two or three years. However, such matters are obviously beyond our experience, and for a medical journal, it is enough to utter a respectful protest against intellectual overstrain in an institution that stands high in the esteem of the people.

MEDICINE IN CURRENT MONTHLY MAGAZINES.

THE field of medicine is a fallow one for the magazine writer. We rarely see articles on the law, dentistry or even theology, but the science of medicinal advance seems always a fascinating subject. In the March issues of the magazines can be noted an article on medical progress in *McClure's*, a somewhat similar one in the *Saturday Evening Post*, two in the *Booklover's Magazine*, one on tuberculosis, and one on cancer. *Leslie's Monthly* has an article on patent medicine and the *Ladies' Home Journal* continues its warfare on the same subject. The trouble as a rule with articles of this nature in a general magazine is that the claims of advances are too sweeping; for example, the article on cancer gives more credit to Doyen, of Paris, than he has received in the profession, at least in America.

The editorials in the *Ladies' Home Journal* are timely and right to the point. This magazine reaches more nearly the patent-medicine-taking class than any other, and it is well known that the sales of these drugs are lessening through Mr. Bok's work. Surely no bright

man or woman reading these editorials can dispute their force or truthfulness. The most interesting article to the physician, however, is undoubtedly the article on patent medicines in *Leslie's Monthly*. It would be well for every medical man to read this sad tale, for though written in a jaunty, satirical way, it is sad and bitter. The writer of this article shows that over eighty millions of dollars a year are paid over the drug-store counters of this country for patent medicines. Besides the waste of money, consider the untreated diseases this shows, or the diseases injured by the compounds swallowed. It is shown that the only skill required to build up a large business in patent medicines is the persistent use of printer's ink; the article itself requires no merit; in fact is better without it. Testimonials are faked or bought as regularly as needed. There are always prominent people who will testify to the efficacy of any medication. Amusing instances are cited where well-known people quoted by name have recommended rival medicines as the sole cause of their good health. There is no business or profession in the world that has such a parasitic growth as has medicine and it is fed by the drug-store whose owner is supposed to be the doctor's best friend. Would any other profession or business in the world tolerate such a condition of affairs?

THE RIDDLE OF THE UNIVERSE.

SEVERAL years ago, Prof. Haeckel wrote a book with the above title, in which he sought to explain the origin of life upon a purely materialistic or monistic basis. In his present book, "The Wonders of Life" (Harper's), he restates his position, which is about as follows:

According to the monistic theory the phenomena of life are merely functions of plasm, determined by the physical, chemical and morphological character of the living matter. The energy of the plasm (by energy is here meant the sum total of the forces which are connected with the living matter) is subject to the general laws of physics and chemistry. The obvious regularity of the vital processes and the organization they produce are the outcome of natural evolution; their physiological factors (heredity and adaptation) are subject to the laws of substance. All the various functions have been mechanically produced, orderly structures having been created by adaptation and transmitted to posterity by heredity. Nutrition is a physico-chemical process, the metabolism of which has an analogy in inorganic catalysis. Reproduction is but a mechanical consequence of transgressive or redundant growth, analogous to the electrical multiplication of crystals. The movement of organisms is not essentially different from the movements of inorganic dynamos. Sensation is a general form of the energy of substance, not

specifically different in sensitive organisms on the one hand, and in irritable inorganic objects, such as powder or dynamite, on the other. There is no such thing as an immaterial soul.

There is in this position much that is assailable; we shall here, however, discuss but one phase of the subject—the origin of life.

Every time one attends a funeral service he is given occasion to reflect that at death dust has returned to dust. This is an absolutely scientific statement. Among all the various material elements which are combined in the living organism there is not one which has not been appropriated from the universe outside that organism. What we term an individual body is but a subtle selection from among these external elements, made under the control of the mysterious force which is vaguely termed the vital principle, the soul of the universe, and the like. We have just set forth the materialist's explanation of this selection.

However, it must be concluded that the monist understands this first cause, the essential origin by which these and other cosmic activities are achieved, no better than it has ever been understood.

The human body, at any rate, is dominated by a mind. The existence of this mind is a fact of experience; to deny this is to deny that there is any such thing as living at all. *Cogito, ergo sum* is the most palpable, the most absolute fact of all facts. This mind, the monist tells us, in its various aspects—reason, intellect, will, emotions—is but the outcome of purely material conditions. The beginning of living, of *sentient* existence, he tells us, in effect was when the sun first shone upon and vivified a morsal of primordial plasm. Thus there was, to start with, a sort of amoeboid, a unicellular existence, from which has evolved step by step through various more and more highly developed stages, the human organism, the most highly developed that we know of.

However, this is by no means an adequate or satisfactory explanation of the way in which the plasm (the protoplasm) became sentient. How did the protoplasm get there? And how did the sun come to shine? The monist will answer that millions of years ago there existed atoms which, under the pressure of gravitation, became concentrated into nebulae, whence upon evolved suns, whence in turn were evolved planets, upon which certain particles of matter, or accumulations of atoms, took the form of protoplasm, upon which the sun acted, thus generating life. Very well, then; but how did the primal atoms come into existence? And the monist will answer: that these atoms were born or evolved out of a single space-filling ether. To this we again, with tiresome persistence, respond; then how did the ether come into existence? And so on, as far back as the monist wants to go. The monist has not in fact, solved the mystery either of mind or of the soul

of the universe. He has not explained the fundamentals of existence; he has taken but a step and only a step into the vast region of the unknowable.

SECRET NOSTRUMS VS. PROPRIETARY PREPARATIONS.

THE *Journal of the American Medical Association* (March 4, '05), contains an exceedingly important editorial upon the above vital subject. This is indeed a subject vital to every physician who is conscious of his own dignity of character; who is anxious to resent every factor—and how many such there are!—tending to degrade the profession with which he has become affiliated; who, while being of all humanitarians the most self-abnegating, is not ready to become the cat's-paw by means of which better business men than he shall accumulate their millions; and who is sufficiently scientific to realize that he cannot in all conscience prescribe for a patient's malady a remedy the nature of which he does not and is not permitted to know.

The personal element in this problem each man must work out for himself, according to his temperament, his needs and his fundamental obligations. We will merely repeat here the specific statement we have already made in these columns to the effect that in one year \$62,000,000 has been expended upon patent medicines in the United States, enough to give every practitioner in the country a yearly income of \$2,000. How could such results be brought about if many physicians did not ingenuously help by their laudatory office conversations with the agents of these medical firms and by their complacent distribution of samples to patients. In the face of such facts as these all talk of love of mankind, altruism, self-abnegation and the like becomes cheap and nauseating. There are many physicians who get from the subtly deriding world in return for their labor and their sweat, praise of this sort—and little else. It appears to us that all such buncombe should give place to homely common sense. It is more dignified for the medical man to earn money for himself and his own, rather than for others; and to require a just return for his work. All this is by way of introduction to the excellent proposals made by the *Journal* we have mentioned.

It is premised that "there is no more serious objection to a proprietary medicine *per se* (i. e., one protected by the copyright or by a trademark) than to one that is protected by a patent; for example, one of the synthetic chemicals. It is acknowledged that the manufacturer should be protected when he has originated something of value to the public or to the profession. It is not acknowledged, however, that this protection should be unlimited, as is the case with the trademarked or copyrighted named articles; a pro-

tection for a limited period, such as a patent gives, is just and fair, but an unlimited protection is not." Technically there is little difference between proprietary medicines manufactured for physicians' use and "patent medicines." Yet the relation of the physician toward them is very different. The latter he does or should reprehend. The former, in point of fact, form a part of his armamentarium. He often has to depend upon them. They reflect the advance made in the science of pharmacy. At first these preparations were introduced under pharmaceutical names. They were elegant preparations with standard, printed formulæ, and physicians gladly specified them in their prescriptions. Some thirty years ago, however, there gradually appeared preparations bearing coined names, "protected" from imitation by copyright or trademark, with formulæ more or less mysterious and fictitious—in other words, secret. Many physicians were induced to use them and as they were generally simple and inexpensive remedies (or rather, preparations) the profits were large. With their fancy therapeutic or disease-suggesting names and with preposterous claims regarding their curative value, these medicines appealed to doctors of a certain sort. They were palatable; they did not require the writing of a full prescription; at least they were harmless placebos. Soon after they became popular with the doctor, however, they became popular in the true sense. The layman preferred them to the so-called patent medicines; for were they not endorsed by the "faculty!" Thus did the physician become "the unpaid peddler of secret nostrums; thus he encouraged his patient to prescribe for himself and thus, as the secret nostrum manufacturer became rich, the physician became poorer."

However, all proprietary medicines must not be classed as secret nostrums; many are honestly made, ethically advertised and worthy the profession's patronage. On the whole, American pharmacy is progressing and is leading the world.

But how is the physician to separate ethical preparations from those which are not? He has no time to investigate; and most physicians have not the training to this end. "The number has become so great that to attempt to separate the good from the bad is bewildering, and no one individual is courageous enough even to try." So that the educated, thinking physician eschews all proprietary mixtures; what else can he do? Medical journals have for years found discrimination a difficult task with regard to their advertising pages. The Board of Trustees of the American Medical Association has grappled with the question at nearly every meeting for many years. Certain rules were formulated which have proved unsatisfactory. No manufacturer would furnish a working formula; therefore statements made concerning the composition of an article could not be verified. After several plans have been tried,

more or less successfully it has been decided to form a council on pharmacy and chemistry whose functions would be similar to those of the Committee on Revision of the United States Pharmacopeia; "in other words to have it take up the work where that committee leaves off, and to publish in book form a list descriptive of the preparations which conform to the required standard, but which are not official." A corps of medical consultants will be formed—physicians connected with the large hospitals in various parts of the country, who will make tests of preparations submitted to them. And a chemical and drug laboratory will be established in the American Medical Association building. The editorial to which we refer gives the names of many of the eminent gentlemen who are members of this council. And the preliminary announcement of this body states that it will pass on preparations whether offered for advertisement or not, and will incorporate those which are approved in the book, "New and Non-official Remedies." Thus there will be a work to which all physicians can refer for information regarding the character and reliability of all preparations that are likely to be brought to their attention, as well as to assist them in separating the secret nostrums from honest, ethical and worthy medicines. The Council will be as liberal in approving articles as is consistent with justice and equity to the public, to the manufacturer and to the physician.

The acceptance of an article ("a drug, chemical or preparation used" in medicine) will be determined by the following rules:

RULE 1.—No article will be admitted unless its active medicinal ingredients and the amounts of such ingredients in a given quantity of the article, be furnished for publication. (Sufficient information should be supplied to permit the Council to verify the statements made regarding the article, and to determine its status from time to time.)

RULE 2.—No chemical compound will be admitted unless information be furnished regarding tests for identity, purity and strength, and, if a synthetic compound, the rational formula.

RULE 3.—No article that is advertised to the public will be admitted; but this rule will not apply to disinfectants, cosmetics, foods and mineral waters, except when advertised in an objectionable manner.

RULE 4.—No article will be admitted whose label, package or circular accompanying the package contains the names of diseases, in the treatment of which the article is indicated. The therapeutic indications, properties and doses may be stated. (This rule does not apply to vaccines and antitoxins nor to advertising in medical journals, nor to literature distributed solely to physicians.)

RULE 5.—No article will be admitted or retained about which the manufacturer, or his agents, make false or

misleading statements regarding the country of origin, raw material from which made, method of collection or preparation.

RULE 6.—No article will be admitted or retained about whose therapeutic value the manufacturer, or his agents, make unwarranted, exaggerated, or misleading statements.

RULE 7.—Labels on articles containing "heroic" or "poisonous" substances should show the amounts of each of such ingredients in a given quantity of the product.

RULE 8.—Every article should have a name or title indicative of its chemical composition or pharmaceutical character, in addition to its trade name, when such trade name is not sufficiently descriptive.

RULE 9.—If the name of an article is registered, or the label copyrighted, the date of registration should be furnished the Council.

RULE 10.—If the article is patented—either process or product—the number and date of such patent or patents should be furnished. If patented in other countries, the name of each country in which patent is held should be supplied, together with the name under which the article is there registered.

We regret that we have not space to set forth the many explanatory comments on these rules which the Council has appended to them. We close our heartily appreciative notice by observing that the acceptance of an article will be based on a careful and unprejudiced examination of the accessible information from all sources, and in compliance with the adopted rules. An acceptance, however, is not necessarily an endorsement; nor is an omission from the list to be construed, in every case, as condemning an article; it may mean that the necessary information has not been obtained. The Council passes judgment, not on the therapeutic value, but on the ethical status; it does not presume to dictate what preparations shall be prescribed; nor does it at present intend an active campaign against fraudulent products. It will merely supply necessary and desirable information concerning those which it considers objectionable.

Dr. Daniel E. Hughes.—A bronze tablet has been unveiled to the memory of this physician, who for twelve years labored in the Philadelphia Hospital, in which he had roof-gardens, sun parlors and other modern methods of treatment instituted. Dr. Hughes' life work was in tuberculosis.

Yellow fever is now considered to be banished from Cuba. This result was mostly due, states Dr. Carlos Finlay, to two commissions from Washington, the second of which, five years ago, established decisively the true etiology of the disease. At the annual meeting of the American Public Health Association at Havana, Major Gorgas was most justly praised. He succeeded within seven months in ridding Havana of her inveterate enemy.

BIBLIOGRAPHICAL

An Introduction to Pharmacognosy.—By Smith, Ely Jelliffe, Ph.D., M.D., Professor of Pharmacognosy and Instructor in Materia Medica and Therapeutics in the Columbia University (College of Physicians and Surgeons), New York. Octavo volume of 265 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, \$2.50 net.

This introduction to Pharmacognosy is the first work published in this country dealing with the special individual anatomic characters of the different drugs, and it will be found of great service in enabling the student to recognize any drug in its crude condition. Dr. Jelliffe has laid special emphasis on the microscopic characteristics of drugs, not, however, neglecting the macroscopic appearances. He has also given considerable attention to the description of drug powders.

In the selection of the drugs studied in detail the author has shown great care, taking those which are most typical of the general drug structures, amply equipping the student of pharmacy to pursue individual research of a practical nature. The source of each drug is given, then the microscopic and macroscopic appearances, the chemistry, and the adulterations—an all-important factor in practical pharmacy.

The book will be found invaluable by the student.

Atlas and Epitome of Operative Ophthalmology.—By O. Haab, of Zürich. Edited, with additions, by George E. de Schweinitz, M.D., Professor of Ophthalmology in the University of Pennsylvania. With 30 colored lithographic plates, 154 text-cuts, and 377 pages of text. Philadelphia, New York, London: W. B. Saunders & Company, 1905. Cloth, \$3.50 net.

This new volume forms an admirable conclusion of the series of atlases on the Eye prepared by Professor Haab. Beginning with a thorough discussion of the proper construction of operation-rooms, narcosis, sterilization as applied to ophthalmic instruments, and disinfection, ophthalmic operations are described with all the fidelity and clearness that thirty years' conscientious practice in eye work naturally brings. The colored illustrations exhibit the same perfection of art and accurateness of detail which we have found only in this invaluable series of atlases. We note that the able editor, Dr. de Schweinitz, has rendered the volume much more valuable by his many additions throughout the text. Any one interested in eye work will find this book unique and of more value than any other work recently published.

Bacteriology and Surgical Technic for Nurses.—By Emily M. A. Stoney, Superintendent of the Training School for Nurses, St. Anthony's Hospital, Rock Island, Ill. *Second Edition, Thoroughly Revised and Much Enlarged* by Frederic R. Griffith, M.D., Surgeon, Fellow of the New York Academy of Medicine. 12mo volume of 278 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1905. Cloth, \$1.50 net.

The revision for the second edition of this practical work has been most thorough and extensive, the book having been increased in size by the addition of over 80 pages and many cuts. Dr. Frederic R. Griffith, to whom the work of revision was intrusted, has wisely added several chapters of unquestionable importance: namely, Bandaging and Dressings; Obstetric Nursing, Care of Infants, etc.; Hygiene and Personal Conduct of the

Nurse, etc. Nurses will find the glossary at the back of much value. As a whole we think it a compact, useful book, pregnant with just the information that nurses most and constantly need.

A Text-Book of Legal Medicine.—By Frank Winthrop Draper, A.M., M.D., Professor of Legal Medicine in Harvard University; Medical Examiner for the County of Suffolk, Massachusetts. Octavo volume of 573 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1905. Cloth, \$4.00 net.

The subject of Legal Medicine is one of great importance, especially to the general practitioner, for it is to him that calls to attend cases which may prove to be medicolegal in character most frequently come. Dr. Draper has written his work both for the general practitioner and for the medical student. He has not only cited illustrative cases from standard treatises on forensic medicine, but these he has supplemented with details from his own exceptionally full experience—an experience gained during his service as Medical Examiner for the City of Boston for the past twenty-six years. During this time his investigations have comprised nearly eight thousand deaths under a suspicion of violence. The author's long teaching career has enabled him to state facts and detail procedures with a clearness rarely met in a work on Legal Medicine. The work is all that can be desired in its way.

Uncooked Foods and How to Use Them.—A Treatise on How to Get the Highest Form of Animal Energy from Food. With Recipes for Preparation of Healthful Combinations and Menus. By Mr. and Mrs. Eugene Christian. 250 pages, 12mo., cloth, price \$1.00. The Health-Culture Co., 153 West 23d Street, New York.

This volume considers the diet question from a point of view that has been taken by no other work. The authors claim that the application of heat in the cooking of food destroys some of the important food elements that were vital and organic by rendering them inorganic, including those that are needed in the building up of the system and the maintenance of bodily and mental health. The work opens with a general consideration of the food question, showing how life is sustained. The various products, as cereals, fruits, nuts, milk, etc., are taken up with comparative tables of food values, time of digestion, etc., the effects of cooking are set forth, and the preparation of uncooked foods, showing that the doing away with this would emancipate woman from the thralldom of the kitchen and the cook stove, and solve in a degree at least the servant question.

It points out that mixing foods in the stomach that do not harmonize is the cause of nearly all stomach diseases, and offers suggestions to remedy this error and also to cure stomach and intestinal troubles by correct eating or combining natural foods.

There are some good points in the text and much to criticize!

Studies in the Psychology of Sex—Sexual Selection in Man. I. Touch. II. Smell. III. Hearing. IV. Vision.—By Havelock Ellis. Pages XII-270. Extra cloth. \$2.00 net. *Sold only by Subscription.* F. A. Davis Company, Philadelphia, 1905.

These studies will probably extend to several volumes, each independent in itself, the one before us being the initial and mainly of a tentative and preliminary character. The author has mapped out the field in broad

and general outlines, bringing together the facts and considerations which indicate the direction of future study. The subject is approached from the highest plane, and is worthy the attention of all scientists.

International Clinics.—Edited by A. O. J. Kelly A.M., M.D., Philadelphia: J. B. Lippincott Company, 1905. Vol. IV., Fourteenth series.

This most remarkable series of quarterly year books, consisting of 1,234 pages, 89 articles, 294 illustrations, 26 of which are in colors, 3 complete monographs: "The Progress of Medicine," "Diseases of Warm Climates," "Syphilis," 16 articles on Treatment, 17 on Medicine, 21 on Surgery, 6 on Medical Gynecology, 3 on Neurology, and Pediatrics, Rhinology, Pathology, etc., are all thoroughly covered by a total of 95 writers, embracing the foremost men in the practice of medicine throughout the world.

The illustrations average 73 to a volume or one to every fourth page. The colored illustrations average 6½ to the volume. Just think of a volume for \$2.00 giving 6 colored illustrations and 73 black and white, 300 pages of the latest and best medical literature that can be gathered by any editorial corps. It proves two things: that the publishers continue to give more and more for the money and that the Clinics is to-day the cheapest and most satisfactory medical book of its class on the market.

Practical Pediatrics.—A Manual of the Medical and Surgical Diseases of Infancy and Childhood. By Dr. E. Graetzer, Editor of the "Centralblatt für Kinderheilkunde" and the "Excerpta Medica." Authorized translation, with numerous Additions and Notes, by Herman B. Sheffield, M.D., Instructor in Diseases of Children, and Attending Pediatricist (O.P.D.), New York Post-Graduate Medical School and Hospital; Visiting Pediatricist to the Metropolitan Hospital and Dispensary, etc. Pages XII-544. Crown octavo. Flexible cloth. Price \$3.00 net. F. A. Davis Company, Philadelphia, 1905.

This little book presents in the smallest possible space a vast amount of practical clinical material, pathological and bacteriological data and details of etiology and diagnosis. There is no superfluous material in it. It is the book for advanced students and general practitioners without a question.

Eye, Ear, Nose, and Throat Nursing.—By A. Edward Davis, A.M., M.D., Professor of Diseases of the Eye in the New York Post-Graduate Medical School and Hospital, and Beaman Douglass, M.D., Professor of Diseases of the Nose and Throat in the New York Post-Graduate Medical School and Hospital. With 32 illustrations. Pages XVI-318. 12mo. Extra cloth. Price \$1.25 net. F. A. Davis Company, Philadelphia, 1905.

This little book is intended for the nurse, but the student and general practitioner will find it of great assistance as a guide for the intelligent care and nursing of the various diseases of which it treats. The methods of preparing the solutions and dressing are given in detail, and the exact method of application fully stated.

Poverty.—By Robert Hunter, President of Social Reform Club; Chairman of New York Child Labor Committee, formerly Headworker of the University Settlement of New York. Pages 382. Cloth, 12mo. \$1.50 net. (Postage 12c.) The Macmillan Company, New York.

This book describes the never-ceasing battle with Poverty, and the degeneracy of the Pauper and the

Vagrant who are beaten in the struggle.

The author has an unusual equipment for an authoritative study of that part of the community which is, or is liable to become, the dependent class. His active service in New York City as Head Worker of the University Settlement is well known; he has served also on the Committee for Prevention of Tuberculosis, the Civic Council's Committee on School Play Centers, besides acting as Chairman of the New York Child Labor Committee.

A Treatise on Urological and Venereal Diseases.—By Bukk G. Carleton, M.D. Professor of Urinary Surgery in the New York Homœopathic College and Hospital, Consulting Genito-urinary Surgeon to the Hahnemann Hospital, and Visiting Genito-urinary Surgeon to the Metropolitan and Flower Hospitals, New York City. 171 illustrations, 795 pages. 8vo. Cloth, \$5.00; half-morocco, \$6.00. Philadelphia. Boericke & Tafel, 1905.

In the preparation of this book the author says, in order to make it of practical advantage to the general practitioner he has endeavored to give a clear and thorough presentation of the approved essentials and principles involved in the pathology, clinical history, diagnosis, prognosis and treatment of the urological and venereal diseases. He has also set forth his personal experiences and conclusions, derived from his private work and clinical service in the various hospitals with which he is connected, together with the advanced opinions of the leading urologicians and specialists in venereal disorders. He has further attempted to make his work distinctive by the space devoted to therapeutics in the cure of disease, in order to make this volume the standard text-book, in his school of practice.

The Influence of Growth on Congenital and Acquired Deformities.—By Adoniram Brown Judson, A.M., M.D., Orthopaedic Surgeon to the Out-Patient Department, New York Hospital, 1878—1903. Formerly President of the American Orthopaedic Association, etc., etc. Profusely illustrated. New York, William Wood & Company, 1905. Price, \$2.00.

This little book contains certain features which, although not entirely novel in themselves, are yet presented in a new light which gives them importance as matters that will repay close attention in practice. It is an important fact that prevention and cure are to be found in managing a case and equipping a patient that natural growth will be the principal factor in recovery. The text is classically written for practical purposes.

Gynecology: Medical and Surgical Outlines for Students and Practitioners.—By Henry J. Garrigues, A.M., M.D., Gynecologist to St. Mark's Hospital, New York; Honorary Fellow of the American Gynecological Society; formerly Professor of Gynecology and Obstetrics in the School for Clinical Medicine, and Professor of Obstetrics in the Post-Graduate School and Hospital. With 343 illustrations. Philadelphia and London: J. B. Lippincott Company, 1905. 461 octavo pp. Price, \$3.00.

This book is written particularly for students by a teacher of experience. It gives an outline such as beginners require, and minor operations are described in detail. The author has written two other books which should not be mistaken for this, as each has its own individual field of study, and all are of the highest standing as text-books.

A Dictionary of Practical Materia Medica.—By John

Henry Clarke, M.D., Vol. II., in two parts. London: The Hom. Publishing Company.

Dr. Clarke's great work of Symptomatic Materia Medica is now complete, the second volume being bound in two parts, so that in reality, it is in three volumes. For those who desire to study the symptoms of drugs, there is no publication its equal; it is unique, and up-to-date. The author certainly deserves the thanks of those for whom he has labored, and his work should become the hand-book of the class to which it belongs.

The Medical Examination for Life Insurance and Its Associated Clinical Methods, with Chapters on the Insurance of Substandard Lives and Accident Insurance.—By Charles Lyman Greene, M.D., St. Paul, Professor of the Theory and Practice of Medicine in the University of Minnesota, formerly Medical Director of the Minnesota Mutual Life Insurance Co., etc., etc. Second edition, revised and enlarged, with 99 illustrations, 466 octavo pp. Philadelphia: P. Blakiston's Son & Co., 1905. Price, \$4.00.

This work, which has been out of print for more than two years, has been reconstructed and re-written, to accord with the present condition of this important subject. There is no doubt that life insurance examiners should understand something of insurance problems, if they are to adequately protect the insurer and do justice to the insured, and this volume furnishes just the information they require. No life insurance examiner can afford to be without it.

Studies in General Physiology.—By Jacques Loeb, formerly of the Department of Physiology, now Professor of Physiology in the University of California. The Decennial publications, second series, vol. xv. In two volumes. Price, \$7.50. Chicago: The University of Chicago Press, 1905.

Prof. Loeb says he would not have the courage to offer this publication, had not physicians and biologists requested him to do so, and there is no wonder. The startling results of the author's investigations, as reported in the daily press, would naturally excite curiosity, if not interest, in the details of the phenomena. A single leading idea dominates the text, namely, that it is possible to get the life-phenomena under our control, and that such a control and nothing else, is the aim of biology. The work is based upon advanced investigation, and as such, will be found food for thought by workers in this branch of science.

On Becoming Blind. Advice for the Use of Persons Losing Their Sight.—By Dr. Emile Javal. Honorary Director of the Ophthalmic Laboratory of the École des Hautes Etudes, Member of the Academy of Medicine. Translated by Carroll E. Edson, A.M., M.D. New York: The Macmillan Company, 1905. 12mo, pp. 191. Price, \$1.25.

The title of this book, the writer of which lost his sight suddenly at the age of sixty-two, explains its scope. The text is delightfully written and cannot fail to interest not only the blind, but those having such persons in charge. There is a vast amount of information which will be found of great service. Those interested will not regret buying this book.

A Practitioner at Ninety.—Dr. Woods, of Birr, in Ireland, has this distinction. When the Board of Guardians in his district voted to give him a full superannuation allowance he objected strenuously. He urged that he was willing and able to earn his salary, and did not wish to take money from the public that he did not earn.

CORRESPONDENCE

MY MEDICAL CREED.

To the Editor of THE MEDICAL TIMES:

I believe medical journals should be free from advertisements of proprietary medicines and should not contain any article that savors of such as are usually found in police gazettes. Each contribution should bear unmistakable evidence of ripe scholarship in medicine and expressed in the most faultless language. Although we have plenty of assurances that this century will crown medicine with its choicest wreath, and will be made more glorious than the one recently passed, medical journalism, compared with that of thirty years since, evidently illustrates no advancement except with a very few journals. The degradation of such journalism to the curse of our profession is due to proprietary medicines and their supporters: by supporters, I refer to the stock companies engaged in manufacturing such objectionable compounds and to the M.D.'s who are directly interested in the concerns; and to the poor and deluded country M.D.'s, who, poorly educated in medical ethics, recommend such preparations either to their patients or in weak articles to our journals; and the worst among them is the *professor*, who for a few dollars betrays his brother by an alluring article. In brief, is not the tendency of medical journalism to a great extent injurious to medicine? I refer to the three-fourth number of medical journals whose title pages should have *Almanacoid* or *Almanac* in bold lettering across their faces.

Can any first-class M.D. preserve his honored position among men as "Interhomines sapiens, inter sapientes medicus, and not be personally humiliated, self-dishonored and at times led to curse himself and even medicine that such bastard and faker medical journals ever exist or are allowed to exist? I can easily refer to several of such pernicious and misleading journals. Is the one, having each month an article by an anonymous correspondent, of such a character as to improve his medical morals and to encourage him to read his works on the action of medicine and to study his *materia medica*? No! no!!

It is well to be a good listener and careful reader, but far better to answer cautiously and guardedly and when to act and decide promptly; use other men's brains well weighed if in doubt, but exercise not too much servility; for now and then the world wants the man with a mission to come out from the crowd. The gods and other divinities in medicine are crying for a Martin Luther to reform its journals and to purify her temples. Dr. O. W. Holmes says: "The human race is divided into two classes; those who go ahead and do something, and those who sit still and inquire;" and we should be content with doing nothing when ignorant how to do good, says Dr. Austin Flint.

It is better to be ambitious to serve and to obtain good results than to seek the crown and the applause. To comfort your patients, to prevent diseases and to afford relief to our patients is indeed the truest ambition. "Medical Ethics and Cognate Subjects," a charming book for all medical men, fully defines our duties, —Blackiston Sons, Philadelphia.

Lest we forget, it is well for us to have before us frequent reminders of our duties, and it is imperative for us to incorporate the following in our morning prayers, although promulgated more than one century since by one of the fathers in medicine:

"Physic requires more industry, pains and labor and indeed more learning, a more extended knowledge of the auxiliary sciences to carry it to perfection than any other profession."

"Blue eyed and fair of face but waning fast into the sere of virginal decay," is Henley's description of the nurse in an Edinburgh Hospital. Of whom no doubt Shakespeare would have said: "Lady, you are the cruellest she alive, if you will lead such graces to the grave and leave the world no copy."

To prevent such happening or misdirected rulings, I for many years have advocated the necessity of encouraging local intelligent widows or spinsters; those who have had much home experience and illustrate admiration and capabilities for nursing as most deserving of the monopoly of the position of nurse, and to many I have given certificates for marked efficiency. The tendency of the trained nurse business (not profession) is towards the invasion of our professional rights, and *she* or *it* (some of them appear of neuter gender) is rapidly endeavoring to get in our shoes, more so than to act as our co-laborers.

To the young doctor, who is possessed of unblemished character, (although I have seen too many opposite illustrations), who is honest, just, humble, generous, persevering and full of ambition in his studies, being well-read in the "humanities" or classics, and envious of honorable success, who has the personal appearance and manners of the real gentleman, who is clean, bodily and morally, true success is assured. False success is won by the most cunning and acute knavery.

*"Ever thy credit keep 'tis quickly gone;
Obtained by many actions, lost by one."*

Self-respect, self-control and self-sacrifice—(*fidus in arcanis*) are the watch-words.

Rejoice in the possession of youth.

"Gaudeamus ignitur juventum dum sumus, Post juncundum juventutem, post-molestam senectutem nos habebit humus." Such for others but not for me, for three scores of years (and thirty-six years in practice) are mine, and lest you forget, keep in daily remembrance the fact that your arduous and yet pleasing studies are not only for this world, but for the world beyond: for those "Elysian plains over which by night, by day, the glorious sun shines equal, where the blest, their labors done, repose forever in unbroken rest," (Pindar. Olym. 11, 109); even where (says Homer) mortals pass the careless hour. No lingering winters there, nor snows, nor showers, but ocean ever to refresh mankind, breathes the shrill spirit of the west-ern wind.

To study for both worlds.

"Non scholae sed vitae discimus vitae-utrique."

JAMES S. SPRAGUE, M.A., M.D., C.M...
Stirling, Ontario, Canada.

March, 1905.

A RETROSPECTIVE GLANCE.

To the Editor of THE MEDICAL TIMES:

When one looks back over a few years of his life, he is often appalled to note the errors of action and mistaken ideas to which he had persistently adhered. Cannot anyone think of some unbecoming way of brushing his hair? Some wrong idea with regard to his dress, etc., which in spite of the advice of his friends and relatives he continued to adhere to, often for years, even when all logic and reason had failed, until some accidental circumstance caused him to abandon it? Well, so it seems to be with all mankind the world over! A "looking backward" gives the same picture. A road marked with erroneous ideas and ways often persisted in even for centuries. The history of the practice of medicine and surgery gives one of the darkest of these pictures. The old days of incantations followed in more recent years by the drastic mercurial purgings and blood-letting. The parched and delirious fever patient with his dry and cracking tongue denied all water. Each and all of these schools thought and believed conscientiously that they were doing what was right and best. Then the bombshell reached and exploded in their camp and the fact would become evident that they had been depleting their already disease-depleted patients. That water in large quantities was demanded in fevers as all of the secretions were being dried up by the fever. That their patients had died through their terrible want of the water; this want being sufficient to throw an individual into a fever even if they were not infected in any way. Great reactions have then taken place. The medical world would rush blindly in some opposite direction, for no conscientious man would care to feel that he has killed! No more teaspoonful doses of metallic mercury. No more blue pills, the size of the end of your finger! In its place minute doses. Dosemetric systems. Conservative physicians with 10-grain doses of antipyrine, etc. No more bleeding of depleted though acutely inflamed patients. In its place comes stimulants, carbonate of ammonia (a gastric irritant); antiphlogistic, heart depressants (tricky); colored lights; X-rays; electricity. And now in fever and acute inflammations, comes "water, water, everywhere!" all they can drink! Jiu Jitsu if you want to remain healthy, even when you are well you must drink at least two gallons of water a day!

A typhoid patient awhile back—I do not know how it is just now—was treated almost entirely in the water. Baths every two or three hours; ice coils over the abdomen; ice caps on the head; flushing the colon. We are now told that it is good treatment to pack the chest with ice in pneumonia, when only a few years ago cold was thought to be the cause, poultices and hot applications the treatment. I recently had my attention called to an article written, explaining—as it was called—"a movement in the right direction." It stated: that some one, or company, was taking up quite a tract of land in Florida; that they were going to construct a number of tents or some such forms of shelter for the consumptives. These consumptives were to be furnished with farm labor, either in small tracts for themselves, or for the company. This mode of life in the consumptive curing climate of Florida was the solution of the problem. The warm, balmy days of the tropics; how sublime to the poor, frost-bitten consumptive! Florida the southern France of America! The

Gulf of Mexico, the Mediterranean! Mints of money have been applied to making such regions resorts for consumptives, in Europe, for perhaps a hundred years back. The physician, however, continues to advise them to go South, though they have been pouring back in the baggage car. Is not this war which is being waged against the "tubercle bacillus," this tearing down of tenement houses only another mad rush? Are not such errors sufficiently plain to be seen? It is a fact that the percentage of tuberculosis is greater in the island of Cuba than it is in the city of New York. In New York the people are shut up in infected houses and forced to live the most unhealthy and conducive life towards the development of consumption. In Cuba they practically live out of doors, most of the houses having no windows and the general forms of occupation being out-of-door work. Yet we continue to send our patients to a climate where even healthy out-door modes of life are not antagonistic to this hopeless disease. Will not bare facts correct our error? The knowledge has been in our possession now for many years that tuberculosis does not exist among the Esquimaux. They live huddled together in a small overheated hut, yet the climate is so invigorating and non-conducive to the development of consumption that they do not acquire it. It may be suggested that perhaps it has never been taken among them? But why not? It has been taken (if such a term could be used?) to all other people! It is more correct to state that it has most likely died out from among them. Low forms of organisms do not thrive in cold, dry environment, (extreme cold always producing atmospheric dryness). If we wish artificially to grow the tubercle bacillus we place them under conditions of warmth and moisture. Physical vigor is the condition systemically which antagonizes and tends to throw off such diseases. Where do we find such? In the cold climates. In these regions man and some of the large and hardy animals thrive; whereas the lower forms of life do not. Putrefaction does not readily take place in organic substances and the bacteria of fermentation would not become active. It is high time that we cease to prescribe and practice this year what we learn next year was harmful.

I once saw the medical profession accept and put into practice a treatment for Bright's disease, which consisted of administering chlorid of sodium in capsules to the full tolerance of the system. The idea advanced was that as it was necessary to have the presence of chrysaloids to carry colloids into the tissues, the salt would furnish the chrysaloids and in consequence, you would have the albuminoids carried into and utilized by the tissues instead of being eliminated by the kidneys. Albuminuria is now recognized to be due to a general cellular and systemic irritation. Salt in excess in the system is known to create a state of general irritation, predisposing to acute inflammations. These, if persisted in, will result in many of the forms of chronic cellular change.

Could we not avoid all such pitfalls in medicine by more carefully watching the hand of nature? Are we sufficiently observant? Are we good enough detectives? Let us go back to the starting point of man and medicine. Let us begin over again and follow both out logically up to this day and see if we cannot construct some more safe basis of treatment.

The first record that we have of the starting of man is the history of Adam and Eve. This history we

know is simply meant to indicate that man was in long past ages made from matter. We are also given to understand that at that time every living thing in nature was created. We know it to be a fact that since then nothing new has been or is now being created. Many varieties have died out. Changes of environment have brought about many strange differences in some animals and plants. The creatures or plants from which they descend were all created or have existed for all time. We are then told that a great flood visited the world. Every living thing upon the earth was destroyed. In the fable of the ark we are given to understand that a pair or sufficient of every living organism was present to perpetuate the species. Is it not evident that nature has been trying to impress the fact upon our minds that all living organisms have existed ever since man commenced to be? That the organisms of disease are as much entitled to their lives as the mosquitoes, the serpents, the birds, plants and animals of all kinds?

We live upon the bodies of animals and plants when put in a suitable condition for us to devour. Such organisms as disease germs or bacteria live upon perhaps human cells when they become a fit soil. What are the predisposing causes which are most likely to produce a consumptive? First, a peculiar or slightly defective constitution; a system with a scrofulitic taint. What are the conditions found or known to exist in such an individual? A lack of full systemic vigor, (not a lack of vigor for action, for such individuals are often extremely energetic, but a loss of cellular or tissue strength). His tissues break down more easily. His nervous system through lack of health like all other impoverished nervous systems, is hyperesthetic, and consequently keyed to too high a state of tension. What is the danger of high tension? A snap or breakdown.

What organs of our system never have any rest from birth to death, sleeping or awake? The heart and lungs. What governs their action principally? The pneumogastric nerve. Upon excitement, grief or any condition of unusual nervous tension either temporary or continuous, we always find the heart's action and the respiratory movements increased in activity. Should a breakdown take place, where would you consider that it would most likely occur? In the nerves and organs which have no rest. It is for this reason that pulmonary tuberculosis is rampant over the world and the common variety of infection. The tubercle bacillus is practically ever present. It has been multiplying like man ever since the ark. It would be impossible for any one to pass through many years of life without coming in contact or being infected with it. The child of a consumptive mother—if what is stated about the milk of a consumptive be true, that is that the tubercle bacillus is present in the milk—must nurse infection at its mother's breast! Any public drinking cup, the dust in the atmosphere, all may be sources of infection.

It is ever present, ever seeking a suitable soil. Some infants at birth have not tissues of sufficient vigor to throw off this enemy. Such fall victims in whatever organ or region is the least resistive. Others go on until depleted by some disease of childhood, then fall a prey to the tubercle bacillus. Another injures his hip-joint and develops coxalgia. Another is allowed to fall and hurts the spine and develops Potts' disease, etc. But the general victim of the world is the consumptive; he whose nervous system has grown weary or

snapped; he whom even when trying to pass an insurance examination cannot expand his chest even with the aid of the voluntary muscles of respiration to a sufficient amount to be accepted; he whose muscles of respiration are wasting somewhat as is evidenced by a slight sinking under the clavicle.

The scientific bacteriologist will say: How about direct inoculation,—such as we demonstrate in our animal houses? We inoculate a perfectly healthy guinea-pig and in two or three weeks he dies of acute tuberculosis. Such examples are perfectly natural and explainable. Such direct and virulent infection of even a healthy animal will overcome all resistive qualities. Leave a little sour milk in your can of fresh milk and see how soon your can of fresh milk will be sour. Rub your fresh roast beef over with a small piece of putrescent meat, then compare its lasting qualities with a piece of meat which has not been so infected.

We have gained very little practical information from direct inoculation experiments and demonstrations, except to prove that like produces like. The fact is that we have not looked upon living organic bodies from a sufficiently chemical standpoint. We are aware of the facts in regard to general chemical substances. Most minute contaminations or exposures to certain influences, such as heat, cold, light and electricity, may spoil or greatly change our mixture; yet when we come in contact with living organic substances we seem extremely blind to such influences. We are aware of the fact, that heat, or rather a certain change of temperature, light and some variety of electricity are necessary to our existence. By our existence we mean for the proper chemical processes and changes to be maintained and kept in a state of continuous chemical activity. If we were preparing an electric cell or jar, or solution for fermentation, we would know that if we furnished the proper ingredients with the proper environment and kept these so related we could keep up the process of either electrical formation, or the process of fermentation as long as desired. But if we expose our same ingredients to either too great heat or cold, we could at once arrest the process. We also realize it to be a fact that with many chemical processes very slight changes of temperature greatly retard or accelerate the process. The influences of light upon chemical substances is in like manner quite well recognized. Electricity we should look upon more as a secondary influence. It being produced through the chemical changes taking place in an organic system, and subsequently utilized to carry on certain of the processes. Let us therefore endeavor to place the practice of medicine upon a more scientific basis. We are guided by natural instinct towards the selection of our foods—just as the rest of the animal kingdom is. The food, therefore, which we take two or three times daily must and does contain all of the chemical products which are needed to keep up the organic chemical processes which we recognize as our existence. It only remains for us to look to a suitable environment, such as the proper temperature and the proper amount of light. Also to make up for waste and evaporation by the proper addition of water. Seek a climate where man is observed to thrive to the best advantage and where the contaminations of our chemical process, bacteria, thrive to poor advantage.

If you find that you do not class among the strong and most resistive to disease, seek a pure, uncontami-

nated atmospheric environment, high, dry and cold; such an atmosphere is poorly suited to bacterial organisms. If your chemical process needs more activity of action, expose it to the action of the sunlight; for it is under the influence of the sunlight that we observe the greatest activity in organic growth. It is more than likely that with degrees and sub-divisions of these natural elements of our existence we can overcome and prevent most of the chronic diseases. The acute diseases are more to be compared with a rifle bullet; if it chances to hit you it will either wound or kill. The ways of best combating such accidents, experience has taught us, and we succeed quite well with them.

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THE CLINIQUE

JAUNDICE IN TYPHOID FEVER—AN UNUSUAL CASE.

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IN reviewing the literature on this subject, I was very much surprised to see that very little reference, if any, was made concerning it. Thus Tyson states, that "Jaundice is *occasionally seen* and may be the result of an obstructive cholangitis excited by the bacillus (typhosus)." Dulfourt, Milian, Hanot, Mason, Welsch, Keen and others have isolated the bacillus typhosus in cases of jaundice, both ante-mortem and post-mortem—in which cases, however, it was usually associated with the B. Coli Communis. Which of these two organisms is the most exciting or predisposing factor has not been satisfactorily explained. That the local action of the b. typhosus is exceedingly vulnerable to the biliary mucous membranes is well illustrated by Cushing in his report of several cases of cholangitis caused undoubtedly by the b. typhosus, in *patients who had never suffered from typhoid fever*. Thus Kehr has found the b. typhosus associated with other organisms which commonly inhabit the gastro-intestinal tract, in a number of his operative cases on gall stones, cholecystitis, etc., in which a careful history failed to elicit any previous typhoidal infection. In consulting Stern (who was for a long time associated with Kehr in Halberstadt) concerning the case I am about to report (*vide infra*) he remarked that he had never seen a case of pronounced jaundice in the course of typhoid fever.

Jaundice not only appears during the course of enteric fever, but it may *usher in the attack*. I saw one such pronounced case with Dr. David Riesman, at the Philadelphia Hospital, several years ago. The patient was a man about thirty years of age, who, when admitted, presented all the objective and subjective symptoms of acute cholecystitis, including marked general jaundice. The case proved to be a typical one of typhoid fever, with spots, widal reaction, enlarged spleen, etc., all positive. If I remember correctly, the patient had a severe siege, with several hemorrhages, but made a good recovery.

Very slight "jaundice" is not infrequent in the course of typhoid fever, but it is so slight that it may

be due to the moderate acute anemia which usually occurs in all infectious fevers, due probably (1) to the infection itself, which may have a very slight hemato-genous action and (2) to the moderate degree of starvation, which so frequently causes "jaundice" in gastric ulcer, gastric carcinoma, etc. We must not mistake the "yellow palms," which rather frequently occurs during the course of this infection (Riesman) for a localized jaundice. It is much rather a metabolic change most manifest in this region. To avoid confusion, these cases might very appropriately be termed *pseudo-jaundice*.

The following case will illustrate this important subject very satisfactorily:

CASE: A. W. Age 32. Married. Germany. Housewife.

Family history.—One brother died of gastric carcinoma. Otherwise, has no bearing on the case.

Social.—Began to menstruate at 14 years of age. Never suffered from dysmenorrhea or other local symptoms. Married at 19 years. Two children.

Previous history.—Ordinary diseases of childhood. Mumps at 7 years. Vague rheumatic pains. Otherwise negative.

Present history.—For past ten or twelve days, has suffered from "lost ambition," progressive tiredness and weakness, constipation, severe headache, nose bleed (three days ago), "general pains throughout the body," anorexia and slight cough. The marked weakness forced her to go to bed.

Physical examination.—Patient a fairly well-nourished woman, of good proportions. Skin moist and warm, and of very good color throughout—not even the slightest trace of jaundice. Conjunctivæ clear. Mucous membranes of good color. Pupils moderately dilated and equal, with normal reactions. Thyroid gland not enlarged.

Lips covered with sordes; unpleasant odor emanates from mouth, very suggestive of typhoid; tongue protruded in the median line; not tremulous to a great degree—coated with whitish fur in median line, but quite clear along the margins and at the tip.

Chest.—Expansion good and equal. Resonance and breath sounds normal, and few moist rales found scattered about the bases posteriorly.

Heart.—Not enlarged. Sounds of good quality, but fairly rapid. (120). No murmurs audible—no friction sounds.

Abdomen.—Slightly distended and tympanitic. Some gurgling and slight tenderness in right iliac fossa. No spots. No masses can be felt.

Liver.—Extends from 4th interspace to costal margin. No tenderness in region of gall bladder, which is not palpable.

Spleen.—Not palpable, but enlarged by Riesman's sign (impairment of note at margin of ribs on deep inspiration and vice versa). No tenderness in this region.

Temperature 100 4-5; pulse 120; respiration 26.

A subsequent examination of the urine showed a slight trace of albumen, but nothing else of importance.

Patient was placed on salol and dilute hydrochloric acid and treated as a case of enteric fever.

On the following Friday (five days after the first

examination) well-defined roseal spots appeared on abdomen and lower chest, and on Monday the Widal and Diazo reactions were both positive.

During the first two weeks the case ran a rather typical course, the temperature ranging 99 3-5—101 in the morning and 100 2-5—103 1-5 in the evening, the pulse and respiration being in accord.

On Wednesday of the third week, however, the patient suddenly developed marked nervous symptoms, preceded by a slight chill, severe headache, nausea and diarrhea. She had no pain whatsoever. The temperature rose from 100 4-5 to 104; the pulse from 96 to 132; respiration 28 to 36. There was sub-consciousness and collapse.

Examination revealed marked jaundice of the conjunctivæ and a suspicious yellowish coloration of the cutaneous surface. The liver was not enlarged—the gall bladder was not palpable. There was some abdominal distension, but no abdominal tenderness. The pupils reacted normally,—there was a good response to all reflexes and Kernig's sign was not present. The patient was ordered no food whatsoever for 24 hours, and 1-4 morphine sulph. with atropine. I suspected an on-coming perforation. In the meantime, I examined the urine and found a positive Gmelin's test for bile pigment, slight traces of albumin and few red blood corpuscles. Within twenty-four hours, there developed very marked general jaundice and slight tenderness over the region of the gall bladder—but there was no pain whatsoever. The stools were rather pale, bordering on clay color and were streaked with blood. No gall stones could be found. Later in the day, there was a pronounced hemorrhage from the bowel, probably about 12 ounces. At this juncture I consulted Dr. Stern, who informed me that there was probably a complicating cholecystitis, and that the tendency to hemorrhage would be probably increased so long as the jaundice existed. At his suggestion, the patient received ten grains of calcium chlorid every four hours. [Osler states "that blood coagulation time may be much retarded (in cases of jaundice) and instead of from three minutes and a half to four minutes and a half, we have found it in some cases as late as eleven or twelve minutes."]

During the next three days the temperature was of a hectic type, ranging from 102 to 104 4-5; the pulse ranged from 118 to 136 and respiration 28 to 40. The jaundice began to disappear on the fourth day, first from the extremities and finally the conjunctivæ. *Pari passu*, the subjective phenomena gradually became ameliorated. The tenderness disappeared in 48 hours. The diarrhea was quite severe for almost five days, being very difficult to control and causing marked weakness. There were no more hemorrhages. Within eight days the jaundice was hardly visible—there was now obstinate constipation. The patient made a good recovery.

There are several points of interest in this case:

Firstly.—The presence of such marked jaundice with associated objective and subjective symptoms pointing to acute cholecystitis, *without the presence of pain*, and only the slightest tenderness in the hepatic region: The process undoubtedly was an extension of the infective process into the biliary passages. Musser states that "the occurrence of jaundice without local hepatic symptoms during the course of fever suggests an infectious process." Of course, the possibility of gall stone

was not forgotten, although the absence of pain spoke strongly against it.

Secondly.—The predisposition to hemorrhage in cases of typhoid fever associated with jaundice. This has been very well accounted for by Dr. Osler by his experiments of retardation of blood coagulability by various infective processes (*vide supra*). This important point is one which should never be forgotten with view to prophylaxis against this not infrequent complication.

Thirdly.—The apparent independence of the biliary infection. From the two severe cases mentioned (one at the Philadelphia Hospital) it will be noted that instead of the unfavorable outcome of a severe mixed infection, each condition apparently runs its own independent course, and having apparently no effect upon each other unless it be antagonistic. The increased tendency to hemorrhage, of course, is due rather to the co-existent jaundice than to the pathological process, *per se*.

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Olive Oil Injections for Constipation.—Einhorn considers this measure not only palliative but often curative. It is most valuable in obstinate cases, especially when due to spasmodic contraction of the bowels, (Hershell, *Lancet*, Oct. 1, '04). Methodical oil injections are also most useful in membranous colitis, relieving the constipation and reducing the amount of mucus. Two things are essential to success: the cases must be suitable; and the injections must be properly given. This method is not applicable as a routine procedure. It will not produce cure in cases depending upon improper food, or hard drinking water, or pyloric stenosis or gastric myasthenia. Olive oil injections are applicable to cases depending upon chronic colitis; constipation associated with spasm of the bowel, such as is frequently found in neurasthenia; and to secure a daily action in atony of the intestines whilst the affection is being treated by electrical methods. In these last cases the first fortnight is trying to both physician and patient; for all purgatives have been abandoned, and the treatment has not yet had time to restore sufficient tone for natural daily movements. The method of injection: from three to ten ounces are introduced into the rectum at bedtime; usually there is an evacuation after breakfast the following morning. If the oil is introduced slowly, at a low pressure, by gravitation, it will not produce an immediate stool and the patient should easily retain it. Hershell condemns the Higginson syringe. When the physician or nurse cannot give the injection, the patient may use Hershell's simple apparatus—a glass funnel of a large capacity relative to its height, provided with a metal loop, by which it can be suspended at a convenient height above the patient's bed. Twenty-seven inches of rubber tube of large calibre terminate in a self-retaining, aluminum nozzle of special construction. This nozzle has a large bore to allow the ready passages of the oil (which invariably clogs the ordinary enema apparatus), and has the end of the bore well rounded so that even when unskillfully used it cannot damage the rectal mucous membranes. The outflow of oil is controlled by a spring clip, which, when opened, will remain so until a catch has been released. The patient heats the measured quantity of oil by standing the beaker containing it in a basin of hot water; it is emptied into the funnel, the clip being closed, hung on a

nail; the patient lies directly under it, a pillow beneath his hips, introduces the nozzle, presses the clip and waits until the funnel is empty. A pad of wool had best be applied to the perineum to absorb any oil which may not be retained; after a few times this is superfluous. Five or six ounces should be used at first, and the daily amount reduced until the smallest which will produce a movement is found; and this can be given nightly for two or three weeks.

Gout.—Ransom (*N. Y. Med. News*, Sept. 10, '04), advises for acute gouty arthritis a milk diet and colchicin gr. 1-100 every two hours. If this drug affects the bowels it must be given at longer intervals. As a rule, two-hour intervals can be maintained for forty-eight hours or more, within which time the inflammation and pain are usually controlled. After all acute symptoms have subsided the drug is given every four hours until recovery. Ransom advises a "joint special" oil of gaultheria, one dram and ichthyol, one ounce to be applied to the joints, which are then wrapped in cotton wool, over which rubber protection or oiled silk is held in place by a roller bandage.

Chronic gout is to be treated by the same method. Massage and passive motion are here indicated, with the use of the joints as much as possible. The tendency of such patients is to spare the joints so that permanent stiffness and disability may result. There is no danger of setting up a new process if the manipulations are begun after all inflammation has subsided. The "teeter" is an apparatus very useful in such cases. It consists of a board 21 by 8 inches. About 3 inches from the lower end another piece of board, about 10 inches long, is fastened to the first piece at right angles by means of a bracket. Upon this "shelf" the foot of the affected leg is placed, the longer board being in contact with the posterior aspect. The patient then rocks to and fro, in a rocking-chair, thereby producing a greater or less amount of motion in the knee and ankle joints. The patient soon becomes accustomed to the apparatus, so that he can read while taking his exercise. It is better than walking, as it keeps the body weight off the knees and compels a much greater angle of motion. The "teeter" also eliminates the muscular rigidity resulting from the patient's tendency to fix the muscles.

Ransom, an experienced student of gout, uses colchicum in chronic cases, contrary to other opinions. He finds it of the greatest service in clearing up joint symptoms; and, when an acute exacerbation has supervened, its prompt effect in controlling the paroxysm has in no way been diminished.

Danger of Delay in Acute Abdominal Lesions.—O. C. Smith (*Yale Med. Jour.*, Jan. '05) well states that pain in the abdomen, unaccompanied by constipation or obstipation which are unrelieved by ordinary methods of catharsis, especially if there be no vomiting, with abdominal distension, whether there is fever and quickened pulse or not, must be considered of a serious nature and to demand immediate attention; in most such cases immediate surgical intervention is indicated. No doubt every practicing physician has come upon cases of the following sort: A woman had for a week a pulse of 120 with a temperature ranging from 98° to 102° and a dull pain in the right inguinal region. Purely tentative measures were employed until a baggy mass in the region of the appendix accumulated to the degree that the family physician one evening concluded

to call in a colleague; the latter advised immediate operation, and at 1 A. M., under unfavorable circumstances, the abdomen was opened, a pint of most offensive pus was evacuated, a rotten appendix was taken away piecemeal and a plug of feces was found which had caused the gangrene. This woman recovered; but had the operation been postponed but a few hours she must certainly have died. It should have been performed within twenty-four hours after her initial symptoms.

The Postdischarge Mortality among the Patients of the Adirondack Cottage Sanatorium.—In this valuable paper (*Am. Med.* Nov. 19, '04), Dr. Lawrason Brown and Dr. E. G. Pope find that the real test of the sanatorium treatment is not the immediate but the ultimate results. The lack of uniformity in classification renders the comparison or the combination of the results of various sanatoria extremely difficult. The classification on "the ability to work" is of little value in this country; Americans differ so in this ability. The mortality among patients discharged in various conditions affords the best method of studying the permanent results of sanatorium treatment. Of those discharged from Saranac apparently cured, 93 per cent. of the expected living are alive; of the disease arrested, 65 per cent.; of the cases discharged with active symptoms 23 per cent. The death-rate among the apparently cured patients is during the first ten years about three times the ordinary death-rate; that among the patients discharged with the disease arrested increases during the first few years to many (10 to 15) times the normal death-rate, but afterward decreases. Nearly half of the patients discharged with an active disease, died in the first two years. Patients between 30 and 40, when discharged apparently cured, seem to relapse less than younger patients. This tendency is little if at all marked among the patients discharged with the disease arrested. Incipient cases seem to relapse less than advanced, when both were discharged in the same condition.

The Early Diagnosis of Pulmonary Tuberculosis.—Cheney (*American Medicine*, Oct. 22, 1904) contributes a valuable paper upon this most important subject. The clinical history and the physical signs must be investigated; sputum examinations do not inform early enough. Tuberculin and the Röntgen ray will not make known what cannot be found in other ways. Several sources of error in diagnosis are pointed out: Prejudice and bias often prevent the physician seeing what would otherwise be perfectly plain. There may be inattention to details. The changes in the early stages are slight; but it is by means of many little things, which singly or uncorrelated do not signify that a diagnosis is often established. There should be persistence in examinations; the evidence must be gone over repeatedly. There should be a careful and painstaking history taken. "In the personal history, the significant point is how the patient lives."

Fatigue and Accidents.—The *Literary Digest* shows conclusively, by means of a diagram and other data, that the number of accidents in trades and factories depends upon fatigue. This increase in accidents is progressive from hour to hour during the first half of the day. After the midday rest, in the first hours of the afternoon, the number is decidedly less than in the last hour of the morning. In the course of the second half-day accidents become hourly more numerous. The maximum number of accidents hourly toward the end of the second half of the day is notably larger than the correspond-

ing maximum for the morning. Imbert and Mestra, who have made these investigations, find that although fatigue is the inevitable consequence of all expenditure of energy and although we cannot do away with it unless we abolish work itself, we can at least prevent it from reaching the degree at which its influence in the productions of accidents is injurious.

These observations would apply to other aspects of life, as every one must have noted. Many a little domestic tragedy has no doubt been lit up by this factor. When brain workers, burning the midnight oil, find that they are beginning to make mistakes in their writing, they are not suffering necessarily from incipient paresis, but rather from fatigue. They will accomplish nothing further until they have rested. Hunger acts on the same principle as fatigue. An astute French statesman was one evening attending a caucus, such as was like to end in a beautiful Gallic scrap. The members were all tired and hungry. "Gentlemen," he advised, "to begin with, let us dine." Thus, having rested and dined, they got their psychism into normal working order and their deliberations were calm and with salutary results.

Acute pelvic peritonitis of gonorrhoeal origin is a dreadful condition, probably not so rare as may be supposed. No doubt many a gleety husband has infected his good wife with results disastrous both to her health and happiness. There is one excellent student of venereal diseases in this city (Lapowski) who declares that gonorrhea is practically never cured; this is undoubtedly going too far. Nevertheless, that many men marry who have not been cured is a statement entirely within limits. Dr. Brooke M. Anspach has read a paper before the Philadelphia County Medical Society on "The Differential Diagnosis and Treatment of Acute Pelvic Peritonitis of Gonorrhoeal Origin," in which he states that gonococcal peritonitis is usually confined to the pelvis, and that even when generalized the prognosis is comparatively favorable; permanent disability and chronic invalidism may be caused, but rarely a fatal result. It may clinically resemble appendicitis. In the one condition, however, symptoms of leucorrhea or vesical irritability have appeared soon after marriage, while in the other there may be a history of previous attacks; the one may set in directly after a menstrual period, the other after some indiscretion in diet; the one is attended with pain in the lower abdomen, worse, perhaps, on either side, the other with pain first in the epigastrium and later localized in the region of the appendix; both may be attended with nausea, vomiting and constipation, symptoms likely to be more marked in appendicitis. Diagnosis is important because appendicitis, especially if complicated by peritonitis, should be subjected to early operation; while the treatment of peritonitis of gonorrhoeal origin should be rest in bed, copious douches of hot salt solution, applications of heat to the abdomen and saline laxatives. Operation during the attack is unwarranted in the latter form of peritonitis. Should, however, the inflammation of the peritoneum become general, celiotomy is indicated. Fluid, if found in the abdomen, should be evacuated, no attempt being made to remove fibrinous deposits on the bowels or to separate adhesions. Diseased tubes containing an appreciable amount of pus should be removed. If, after expectant treatment, gross inflammatory alterations are diagnosed about the adenexa, operation becomes justified.

MISCELLANY

France drinks the most wine, and Belgium the most beer. The United States, as a consumer of alcoholic drinks, runs far behind most countries.

The annual bill to abolish coroners has been presented in Albany. Such a bill has come to be an institution in the New York Legislature, so many years has it been introduced and so many times has it "just barely missed" being passed.

The New York Eye and Ear Hospital is to have a new \$600,000 structure put up in East 64th street. There will be a frontage of 118 feet and a depth of 100 feet with two wings fitted with sun parlors at each of the nine stories.

Russian officers bribe doctors appointed to examine them after their cure and to report as to their fitness for further services. Lack of enthusiasm for fighting the Japs, states *London Times*, makes them eager, if possible, to escape service.

Medical legislation is greatly desired by the American Medical Association; and Dr. C. A. L. Reed reports that it has been arranged to have a correspondent in every county in the United States to the end of securing such legislation as the association should desire.

A noted actress has confided to the public that she likes her whiskey with a little bitter in it. In other words, her statement, together with her photograph, is advertised to the effect that she most heartily endorses "the great remedy, Peruna, as a nerve tonic."

Drinking as much water as possible, a practice often recommended by physicians, without considering the condition of the heart, circulation and the kidneys, cannot be too strongly condemned, states Dr. Morris Manges, in a paper in the *New York Medical Journal*.

Dr. Wiley's "poison squad" will until the coming of July, be testing the effects of artificial coloring matters in food. Later similar experiments will be made concerning cold storage food products and the rapidity of the development of bacteria under cold storage conditions.

Model tenements are provided for in New York City by the gift of \$1,000,000 made by Mr. Henry Phipps. It is expected that these tenements will earn about four per cent. on their cost, and that these earnings will accumulate and be used from time to time in erecting more tenements.

Isthmus sanitary work, declares Dr. Nicholas Senn, has greatly improved the condition of the cities of Panama and Colon, and has reduced the liability to yellow fever and other infections by draining the land in the region of the canal zone. Colonel Gorgas is in great measure to be thanked for this result.

A Tuberculosis Directory is published jointly by the Charity Organization Society and the National Association for the Study and Prevention of Tuberculosis. The names of American institutions, many statistics and much information for both the poor and the well-to-do, for both physicians and patients, is compressed within 250 pages.

The vermiform appendix, considers Sir Wm. McEwen, instead of being a useless organ and a mystery in the human anatomy, has a very important function in assisting digestion. It should be parted with only as a last recourse to save life, being the chief habitat of a micro-organism whose business it is to attack imperfectly assimilated nourishment.

Scalding in a nursery bath is an accident which happens rather too frequently. It is oftentimes caused by great hurry. An excellent, but careless, physician, some time ago, sat an infant with convulsions in a wash-basin on a hot stove. The water was not hot; but the infant was allowed to rest on the bottom until its legs and buttocks became dreadfully burned. A prosecution resulted.

A new Red Cross Hospital is to be built on a street in New York, overlooking Fort George. "While limited in its capacity, it is to rival in completeness every other hospital in the city." That will be an extraordinary large contract to fill. A new training school for nurses will be a feature of the new institution; and it is expected that the Government will be supplied readily with nurses upon request.

Seely's Best, stated Dr. Alexander Lambert at a meeting of the New York Academy, is a tipple much in favor on Avenue A. A hospital patient told him that, as a matter of course, it was his custom to take a couple of drinks of this whiskey before breakfast. They cost ten cents a drink and the amount of each was *one pint*—a quart of whiskey before breakfast, not to speak of such as was taken thereafter. Some of those who do this die of alcoholism.

The paucity of public urinals is an evil in many an American city. This matter, seemingly so trivial, really demonstrates the dictum that no detail of municipal life should be neglected. Many a man with no taste for liquor has bought himself a drink because he has found relief in no other place than a saloon. In this city there are now, after many years of inconvenience, some half a dozen "public comfort" stations; there should be one to every few blocks.

Gingerism seems to be popular among English society folk. Very large quantities of the tincture of ginger are said to be taken—a pint daily, it is averred. No doubt, this domestic article is used to begin with in cases of mental and social strain, of which gastric manifestations are reflex; the habit, however, is fully as cumulative as that of cocaine or morphin, which it is often desired thus to avoid; and fully as dangerous as these latter, when the habit is once formed.

The microscope in tuberculosis is not a safe guide, declares Dr. H. C. Clapp, (*Am. Med.*, Dec. 10, '04). Absence of tubercle bacilli in the sputum on two or three examinations does not mean absence of tuberculosis. The physician should not conclude therefrom that his patient is in no danger; nor should he neglect proper treatment until perhaps the stage of incurability is reached. The diagnostician should be able to recognize the disease before enough ulceration and cavitation have occurred to allow the escape of the bacilli from the lung substance into the sputum.

A medical Pooh-Bah has, it seems, been provided for by a Maryland law to the effect that the resident or attending physician of any institution might, on application to the county commissioners, be appointed a sub-registrar of vital statistics, with the authority to grant permits for the burial of persons dying in such institutions. One man might thus be invested with the right to attend the sick, to make death certificates and to authorize the final disposition of the dead. Certainly such an arrangement would be compromising; the dishonest could make it a ready aid in the concealment of crime.

AUSCULTATORY PERCUSSION.

BY A. L. BENEDICT, A.M., M.D., OF BUFFALO.

THIS method of physical examination, although known for many years, has rarely been systematically taught to medical students and it is commonly held in slight esteem, perhaps because it requires the same diligent practice as the art of ordinary percussion, so that diagnosticians already expert in the latter have not exercised the patience necessary to the acquisition of the newer method. In 1892-3, the writer, having previously made an ineffectual attempt to derive practical benefit from auscultatory percussion, began a series of experiments and clinical observations, which are embodied in a paper presented to the Medical Society of the State of New York and which received the prize of the year 1894-5. Probably most others who have attempted to learn this art, will agree with the writer, that almost the only information available at this time was that such a method existed and that it was carried on by joint use of percussion and a stethoscope. Thus, each investigator has been obliged to do a considerable amount of preliminary drudgery and to rediscover this art for himself.

The term *auscultatory percussion* is objectionable, since the ordinary percussion in medical examinations is observed mainly by auscultation and the qualifying adjective simply perpetrates the common blunder of the medical student, who does not realize that he practices *auscultation* unless he uses an instrument. *Stethoscopic* percussion would be a better term, for the stethoscope is usually necessary, not only to magnify—or, strictly, to conserve—the acoustic vibrations but because the area usually examined is so limited that immediate auscultation is impossible. Nevertheless, the stethoscope may be dispensed with in applying this method to the detection of ascites or thoracic effusion or to the demarcation of a very large stomach or liver. Visceral transonance is a term of recent suggestion and to which little objection can be raised.

Auscultatory percussion—to retain the common designation—depends upon the simple acoustic law that vibrations are conducted more readily, that is, with less loss of intensity, through a fairly homogeneous medium than when they are transmitted through several juxtaposed bodies of different constitutions. Thus, if acoustic vibrations are conveyed to the ear as directly as possible from the body over which percussion is made, they are much louder than if the percussion and auscultation are performed over different bodies, even of the same kind but separated. The general principle may be applied experimentally, by percussing on tables, on studs in walls, or, as every boy has observed, by listening to the sound of stones knocked together, with the ear first under water and then in the air, the stones being held under water, or in the air. While water is a much better conductor of sound than air, this experiment, carefully made, shows a loss of conducting power by a transit from one medium to the other.

For medical purposes, auscultatory percussion can be applied to any organ, new growth or collection of fluid—liquid or gaseous—which is in contact with the body wall, even in a small area, and which is large enough so that the stethoscope and the plexor are separated by a space of, say, half an inch. Within this radius, the shock of the blow is so great as to be confusing. A pleximeter is usually dispensed with. The older au-

thorities recommend a wooden or ivory, uniaural stethoscope. The writer uses a modification of the familiar Camman binaural instrument, with soft rubber tubes united by a hard rubber Y. Any Binaural instrument that has a small chest piece, and that conducts sounds well, without "singing," will be found satisfactory. The most generally useful plexor is the middle finger, struck lightly but sharply, against the body wall. The writer has experimented with a dental "plugger," protected at the end by a hard wood or vulcanite disk, but without advantage. The phonendoscope as a substitute for the ordinary stethoscope, has been found inferior. In some cases, a little instrument devised by the writer and consisting of a tuning fork set in a vulcanite case, allows more delicate differentiations than the plexor finger. The superiority of this instrument is chiefly in cases in which the stomach and colon are both distended to a nearly equal size and are closely pressed together, or in analogous conditions affecting two cysts. Very likely, the lungs and pleural cavities present similar indications for discrimination but the writer's practice is limited to the digestive organs and such complications, presenting problems of great nicety, are seldom encountered.

Theoretically, it makes no difference, in outlining an organ, whether the plexor is held stationary and the stethoscope moved, or vice versa. Practically, most organs are in contact with the body wall for so small a space, that the stethoscope must be located here, it being possible to throw the organ into vibration by the plexor, even if it is not immediately in contact with the body wall. To avoid a transference to another unit of vibration, it is usually best to hold the stethoscope in the same spot, throughout the examination of a given organ. In the case of a large organ, however, as the lungs or the dilated stomach, it is necessary to move the stethoscope, since the vibrations are not conducted with sufficient intensity to enable the entire organ to be mapped out from one centre.

Generally speaking, it is best to omit altogether the idea of quality or pitch, in the use of auscultatory percussion and to concentrate the attention on the one question of where the plexor passes beyond the organ or other anatomic unit over which the stethoscope is held. Percussing back and forth along radiating lines, enough points are located and marked with the dermatograph, to indicate the area in question. After months or years, some idea of quality may be gained but the usefulness of auscultatory percussion is practically limited to a form of map-making. It should not be forgotten that this method is utterly incapable of naming organs and, to the inexperienced, it can not even give information as to whether they are filled with gas or are solid. For instance, at necropsies, the writer has several times outlined what appeared to be the stomach, and driven in pins to enable the results to be checked by section. The latter showed that an organ had been correctly located but it was the colon and not the stomach, the stomach having been pushed up under the ribs. Indeed, the writer is very sceptic as to reports of acute gastric dilatation, not corroborated by section, for the distended colon or juxtaposed colon and stomach may apparently support such a diagnosis, as made by ordinary or auscultatory percussion, while the area can be resolved into two, by the tuning fork. One may, and frequently does, map out the posterior projection of the stomach believing it to be the spleen; or he may find

a very small "stomach" on the left side and a distended "hepatic flexure of the colon" on the right side, and then discover that he is dealing with a case of transposition of viscera. Or, a high and apparently small and tonic stomach may be found when the symptoms point to stagnation, and the true condition will be found to be a transverse colon above a stomach in a state of marked gastropnoia. Again, one may find, by auscultatory percussion, an apparently normal or only slightly enlarged liver, yet easily feel the lower border of that organ a hand's breadth or more below the costal arch but, on section, ante or post mortem, he may be able to explain the inconsistency by finding the palpable downward projection to consist of cancerous tissue or an abscess which, of course, would not vibrate as a unit with comparatively normal liver tissue.

In other words, in saying that we are mapping out such and such an organ by auscultatory percussion, we anticipate the corroborative evidence as to its identity, only to be obtained in other ways. We should say only that we have mapped out areas of the same kind of structure, which seem to correspond to certain organs. All of the possible fallacies mentioned have actually been observed by the writer, and most of them repeatedly. In one case, after mapping out the upper border of the liver at a necropsy, the writer confessed himself unable to establish the lower border, because he was governed by preconceived notions as to the possibilities of the case and did not rely blindly on the results of the examination. As a matter of fact, the section corroborated the actual finding by auscultatory percussion, namely, a liver so shrunken as to be less than an inch in vertical diameter.

As to the practical objects of examination by this method, one may exclude the lungs and pregnant uterus, as susceptible of localization by percussion and palpation, respectively, with greater ease and certainty. Pulmonary cavities, areas of consolidation or emphysema and liquid or gas in the thorax are well located by auscultatory percussion but the nature of the area defined, must be determined in other ways. In collections of gas, as in cavities and pneumo-thorax, coin percussion is of value, in connection with the stethoscope.

The smaller and more deeply situated abdominal viscera are not adapted to this method, unless displaced and enlarged, as in the case of large ovarian cysts, dropsy of the gall bladder, etc. The spleen may usually be mapped out in the back as an oval area, about one and one-half inches in horizontal diameter, not reaching the spine, and extending for three or four inches vertically, below the scapula. The optimum location of the stethoscope must be determined experimentally in each case, as there is always the liability of mapping out the posterior projection of the stomach. The latter can be distinguished by making an imaginary antero-posterior, normal projection, of the anterior gastric area. Location of the normal spleen is always rather difficult, even after considerable experience, but it is more easily accomplished in this way than by other methods. Indeed, most physical examinations by all other methods ignore the spleen entirely till it so enormously enlarges as to be palpable below the stomach and in the flank and to cast a large shadow on the fluoroscope.

The stomach, liver and heart are the organs ordinarily located by auscultatory percussion and with considerable ease and exactness, unless the patient is very fat

or unless emphysema of marked degree obscures the heart area and some exceptional condition masks the other organs. In examining the heart, the stethoscope is placed about as to listen for the tricuspid valve, wherever cardiac dulness is most marked. The area normally extends to the third rib above, to the nipple line on the left, to a quarter of an inch beyond the right border of the sternum on the right, and sweeping downward and to the left, to meet the apex in the fifth intercostal space.

To locate the liver, the stethoscope should be placed in the nipple line about the middle of the region of flatness. The normal area by auscultatory percussion is very uniformly at the costal margin below, and the fourth rib above, in men and children, and at the fifth rib in broad-waisted women. Usually, the left lobe can be located quite accurately. The dome of the organ is too remote from the chest wall to be detected but the lower margin can always be located, even if dulness by ordinary percussion is replaced by the tympany of over or underlying intestine. Palpation with curved fingers or the side of the hand will verify the results of auscultatory percussion, if we remember to allow for the fact that we are palpating upward through the abdominal wall, whose thickness must be subtracted. Ordinary, heavy percussion will usually verify the upper border. By the X-rays, the upper border is well shown but the lower is apt to be indistinct. The respiratory movement of the liver seems about twice as great by the X-rays, as by auscultatory percussion, for the reason that by the latter method, we naturally think of the ribs as stationary and the liver does not change its relation to the ribs in front, except slightly.

For determining the gastric area, the stethoscope is placed about two inches "northeast" of the umbilicus, care being taken that it is below the left lobe of the liver. The normal area reaches to the sixth or seventh rib, to a parallel about an inch north of the umbilic equator and scarcely beyond the median line. The area is elliptic, with its major axis at an angle of about forty-five degrees from the horizontal. A tumor of the pylorus is not included in this area and, if there is a sharp demarcation of gaseous and liquid or semi-solid contents, two areas are, of course, made out.

Owing to the small size of the upper bowel and its irregular distention, it is practically useless to apply this method of diagnosis and even the distended colon can seldom be demonstrated as a unit, on account of its length and the rarity of homogeneous distention.

Auscultatory percussion may be used for the demonstration of various tumors, properly located, and it has some qualitative value, as has been mentioned in the case of tumors of the liver and of the pylorus. A tumor composed partly of solid and partly of cystic material but apparently homogeneous by palpation and by ordinary percussion, may, analogously, be separated into several areas by auscultatory percussion and while the method affords no direct information as to the consistence of these areas, it is of some value to know that the mass is not a pathologic unit. In one instance, the writer was invited to witness the injection of oxygen into a peritoneal cavity, supposed to be the seat of a tuberculous ascites. There was a protuberant abdomen translucent and, for some inexplicable reason, the flanks as well as the infra-umbilical region, were dull on percussion. But, by auscultatory percussion, a circular area was mapped out in the lower part of the abdomen, and

the diagnosis of a large, unilocular cyst was made, mathematic probability pointing to parovarian cyst. Only after considerable urging, was the surgeon induced to make a small incision instead of an aspiration, when the diagnosis was verified and the operation correspondingly changed. One or two exactly similar cases have also been seen by the writer. Per contra, the method of diagnosis is equally valuable to establish the existence of an ascites when pregnancy or tumor has been suspected.

THE GROWTH OF SANITATION AND SANATORIA IN THE UNITED STATES.

BY A. M. LEONARD, M.D.

CHAPIN, Superintendent of Health in the city of Providence, published three years ago a comprehensive history of municipal sanitation which showed the strides we are making. No physician can read such a work without acquiring a thoroughly practical knowledge of an intricate subject; Wyman, also, in his address before the Pan-American Congress held in Havana, gave expression to many mature thoughts. He emphasized the need of better relation between the authorities in the terrific undertaking of the elimination of contagious diseases; for we are seriously lacking yet in the proper methods to suppress many suppressible diseases. Some diseases are well under control, smallpox especially, and diphtheria, while Wyman thinks that we are on the verge of the discovery of specific remedies for tuberculosis and typhoid fever.

Sanitary advances have not kept pace with scientific knowledge as yet, for scientific knowledge is not so widely diffused as it should be and will be. A stronger public sentiment must be created in favor of municipal cleanliness, which should rank as one of the foremost objects of municipal government. Dr. Wyman sees no reason for the existence of slums in any city; he thinks too much attention is paid to public parks and handsome municipal buildings, while the most needed improvements are in the alleys, around the docks, and in tenement districts. Again, he feels that the time is ripe when we must consider the necessity of ridding ourselves of restrictions upon commerce; many quarantine methods are antiquated, oppressive, and even absurd, and Dr. Wyman calls attention to the defects; for example, when a large number of cabin passengers, all of them in good health, are held on board a steamer in the upper cabin because of one case of infectious disease in the steerage, their detention is due primarily to the faulty sanitation of some miserable portion of some foreign city, receiving a demonstration of their personal interest in sanitary science. Municipal deception either in the concealment of contagious disease or by reports giving a sense of false security to other communities must be frowned upon. Wyman emphasizes the necessity of having our legislators more thoroughly trained in sanitary science. The modern legislator should be versed in the law, and skilled in framing the laws, and yet familiar with the requirements of up-to-date sanitary science.

Open air sanatoria for nervous patients were begun by Otto Mueller, realizing that some patients would be much better off with physical work and exercise. This has always been advised for melancholia; but for neurasthenia, hard work is not to be considered. Such patients need rest and rest and rest. Should, however,

psychopathic complications appear, some regular work will distract the patient's attention from himself; the nervous patient must be distinguished from neurasthenic, for while the latter is really tired out physically, the former only feels tired, and can do more than enough work. For him, too, at first, rest will be necessary; then, later, exercise and work will do immense good. Work will also benefit the hysteric and epileptic physically, but not his illness.

Municipal care of the consumptive poor has been emphasized by S. A. Knopf. He demonstrates again the fact that pulmonary tuberculosis is a curable disease as well as a preventable one, provided it is diagnosed early; the mortality from tuberculosis is most marked between the ages of seventeen and thirty-five, at a period when the individual should be a most useful member of society, a breadwinner and a supporter of a family, constituting a great economic loss to the community as well as a calamity to the patient's family. The most essential requirements for the treatment of a consumptive are good, pure air and plenty of it, sunshine and plenty of it, medical supervision and plenty of it, and a city tenement is not a place in which these conditions prevail. Sanatorium treatment, besides including the administration of drugs, teaches the patient to control his cough, to be rigorously clean and careful with his expectoration and other secretions; how not to take cold; what to do in case of accident; what to avoid and what to do in order to continue on the road to health. The regular life that he leads and the hygienic training that he receives in a sanatorium are of inestimable value to the patient as well as his family, but one objection to the establishment of a sanatorium for consumptives comes from property holders in the neighborhood, who believe that the disease will be spread, decreasing the value of their property. Official statistics prove that the mortality from tuberculosis in two German villages where consumptive sanatoria now exist has been reduced one-third since the establishment of these institutions, and Knopf cites an instance in which the establishment of a sanatorium for the treatment of tuberculosis resulted in an increase in the value of the adjoining property. Each city should have especially constructed buildings that should serve as reception hospitals for tuberculous patients whence cases for the city hospital or state sanatorium should be selected. Again, a sanatorium should be established near the seashore for the treatment of tuberculous and scrofulous children; while the managers of maternity hospitals should set apart the best lighted and best ventilated wards and rooms for the exclusive treatment of tuberculous women. Knopf recommends that a tuberculosis commission should be formed composed of physicians and laymen; the duties of this commission to be (1) to determine the applicant's condition by medical examination and to assign him to the proper hospital or dispensary for treatment; (2) to visit the home of the patient and to institute such hygienic measures as seem necessary to prevent further contamination; (3) to examine the other members of the family in order to determine whether any of them have contracted the disease and to counsel proper treatment; (4) to make full report to the sanitary authorities as to the condition of the patient's dwelling; (5) to distribute literature and to give advice concerning the prevention of tuberculosis and hygiene in general; to determine the financial condition of the applicant for treatment and the

condition of other members of the family if it is the wage earner who is removed.

Duffield states that there is a great diversity of climates in Arizona, varying from subtropical to that of the high mountain elevations. The advantages of the climate are a dry atmosphere, a low percentage of humidity and a high percentage of sunshine. Arizona offers an elevation of 13,000 feet above the sea level, and the State is well supplied with mineral and thermal springs.

Arizona, in Bell's judgment, stands first as a climate of value for all respiratory diseases, and he places Tucson at the head of the list of cities in Arizona to which to send such patients. Tucson has an elevation of about 4,000 feet, there is very little irrigation carried on near it; its annual rainfall is from eight to ten inches; its mean average annual humidity is thirty-six per cent. It is singularly free from wind, dust and sudden changes of temperature because it is nearly surrounded by high mountains. It has a maximum of sunshine and is a desirable place to live in. South California is frequently resorted to by tuberculous patients, but in the author's opinion there are many places that are much better for this class of invalids. Although the annual rainfall is but fifteen inches the dense fogs which prevail all over Southern California, except in the mountains, render the climate too moist for any tuberculous patients and for others suffering from such respiratory diseases as asthma and chronic bronchitis. Physicians in sending patients to the far Southwest should be careful to send them in the first stage of their disease. Second and third stage patients may have life prolonged but rarely recover. On arriving at his destination the patient should spend the early months of his sojourn in resting and living as much as possible in the open air. Nervous patients and patients who are liable to hemorrhage should be sent to a moderate altitude.

It is not generally known that Texas has isolated her consumptive convicts, showing a proper appreciation of the modern idea regarding this most destructive of human maladies. The "Wynne farm," on which the diseased prisoners are located, is a large plantation situated two miles beyond Huntsville and is the property of the State; for some years it has been cultivated by convicts, but not until December, 1899, was it set aside for the exclusive occupancy of consumptives. On October 31, 1900, there were confined in the Texas Penitentiary, 4,109 convicts. Of this number there were: Whites, 1,421; negroes, 2,226; Mexicans, 460; Indians, 2. Many of the whites come from the tramp contingent of the population, and are the class of being who indulge in the common vices of the age, thus weakening the power of the system to throw off disease. Added to this many of them lie in crowded and unsanitary jails for months, and even years, before commitment. As to the negro element it is well known that a large proportion of the race is particularly susceptible to tuberculosis. For the most part the Mexicans are from the salubrious prairies of the West. Consequently, when they are housed in the buildings of the prison the change of life makes them an easy prey to consumption.

It is essential to remember that two things are needed to set in action the tubercular process: the seed and the soil. The seed is provided by the tubercle bacillus, and this bacillus is liberally distributed; the more closely human beings are packed together, the more common is

the bacillus. Yet it is remarkable that in spite of the general diffusion of the bacterium that tuberculosis, although a common affection, is by no means universal. Treves says: "It is evident that the soil is much more important than the seed—that there must be a large proportion of a population who are practically non-inoculable, while there is a proportion whose bodies form a suitable medium in which the bacillus can grow. Tuberculous disease may be acquired, but it cannot be inherited." The parent transmits simply a constitutional delicacy or some peculiarity of the pulmonary tissue which renders the individual more liable to become the subject of bacillary infection; but it cannot be said that we have yet any certain information on this subject. It has been suggested that the frequency of this disease in the same family was in part due to the condition of the life and environment, and not necessarily to heredity; this does not disprove the existence of heredity as a factor in the causation, of phthisis, but simply modifies its preponderating influence. Squire gave an analysis of one thousand cases of phthisis, with special reference to the proportion of cases in which apparent heredity was found. The inquiry tended to show that the influence of heredity could not be put higher than nine per cent. of cases among children of phthisical parents, in excess of the cases occurring among the children of non-phthisical parents, so he argues that the hereditary influence in phthisis was not a true heredity, but a tendency to suffer from disease—tuberculosis amongst other complaints—which the offspring of consumptives had in common with the children of weakly parents. To dispute this reasoning Pollock shows that thirty-eight per cent. of the cases of phthisis observed by him had parental phthisis preceding them; he did not consider phthisis contagious in the ordinary sense of the term, and instanced the rarity with which it developed among the medical officers and nurses of the "Brompton Hospital for Consumption." If both parents died of phthisis, the offspring would die not only at an earlier date, but from a more acute type of the disease; and in all his experience of forty years, he believed heredity the most important factor in the causation of tuberculosis.

Strictly speaking no specific disease can be called hereditary; the conditions which are hereditary are the anatomical and physiological peculiarities of the organism. A bacillus cannot be regarded as one of its anatomical or physiological peculiarities; it is only a parasite; parasites may be conveyed from parents to children, such as the *Achorion Schonleinii*, and the *Acarus Scabiei*; but this is no hereditary communication, it is simply a present from the loving parent to his child. But, it is claimed, if the parasite be conveyed through the organs of generation, then it is no longer a present or an inoculation, but hereditary.

The influence of heredity upon the progress of phthisis has been very fully investigated by Solly, of Colorado Springs, whose cases were all treated at an altitude of six thousand feet. From a careful study of two hundred and fifty cases, extended over a period of sixteen years, he points out three ways in which the family may effect the development of phthisis, viz.: (1) By direct transmission of the bacilli in procreation; (2) by inheritance of a physique peculiarly susceptible to phthisis; (3) by contagion from living with consumptive relatives or in their dwellings; in consequence, he pleads for the recognition of heredity as of considerable

importance both in diagnosis and treatment.

The necessity for the disinfection of tubercle-infected houses has been emphasized by Sheridan Delepine and A. Ransome; they sum up the results of their long continued and extensive inquiry as follows: (1) The disinfection of rooms which have been contaminated with tuberculous products, cannot be obtained by means of the fumigation methods, such as are generally used at present. Sulphurous acid, chlorine, and euehlorine, as used under supervision of experienced municipal disinfectors, have proved practically useless. This only confirms the results obtained by Koch and his pupils in the case of a number of other organisms. (2) The only other method of disinfection which seemed to promise more satisfactory results, was the direct application of a solution of chlorinated lime to the walls to be disinfected. This method has given, so far, satisfactory results, but is attended with discomfort on the part of those who have to carry out the disinfection. (3) Light is, in the case of the tubercle bacillus, as it has been proved by several observers to be in the case of other organisms, the most important natural disinfecting agent.

Public opinion is now ripe for the placing of consumption in the list of notifiable diseases; in England public and official announcement of the fact, that, in the event of a person having died of consumption, the rooms occupied by him will be disinfected by the Sanitary Authorities free of charge. The facilities for disinfection should extend to any dwelling which has been vacated by a consumptive person, and should be enforced in the case of hotels and lodgings at health resorts frequented by sufferers from lung disease. It should be made illegal to let any house or room in which any person, within two months, has suffered from consumption without having had it disinfected fully. Make it an offense punishable by fine or imprisonment for any person letting a house or room to willfully conceal or deny that there has been consumption in the house; also call the attention of shipping agents to the fact that there is danger to a healthy person in occupying the same cabin with a consumptive, especially on long voyages, and when, from inclemency, the passengers are not much on deck. Make it compulsory for a consumptive person taking a long voyage by sea to notify the nature of his complaint before starting; call the attention of railway companies, on lines connected with well-known health resorts for consumptives, to the necessity for having the sleeping cars carefully cleaned with some disinfecting solution, and thoroughly aired. Remove hospitals for consumption from large towns to some convenient and open suburb; although the out-patient department should be retained in town, but there should be no in-patients. Exercise greater care in the inspection of cattle intended for food, and the compulsory rejection of those exhibiting tubercular disease. Reject the milk of tubercular cows from commerce. Inspect the herds by paid officials, with the view of detecting tubercular disease, and isolating or destroying tubercular animals, with the prevention of overcrowding among animals intended for food. Prevent overcrowding among people, by regulating the amount of cubic space allotted to each person in common lodging houses, workshops, etc. Back to back houses should be condemned, and the height of houses in cities should be strictly in proportion to the width of the street. Blind alleys should be opened out, and the custom of building houses at right angles to

the length of the streets should be forbidden. Dusty occupations should be strictly regulated, so as to minimize the danger to those who are compelled to follow them. No one should consent to sleep in the same room with a person suffering from advanced phthisis, especially if expectoration is abundant; while the temperature of the room occupied by a consumptive should not be too high, especially when he is confined in bed, and efficient ventilation should be secured, preferably by means of open windows. The patient should expectorate into a spittoon containing the English Government Board Solution, or some other equally good disinfectant. The expectorated matter should be destroyed by mixing it with fine coal, and burning it in the fire. The pocket-handkerchief used by the patient should be thrown into a bucket containing an antiseptic solution, and should be scalded before being sent to the wash. Instead of the ordinary handkerchief, a paper substitute, or pieces of rag, is better for these can be burned. Remember that the risk of conveying the disease from the sick husband to the healthy wife, who nurses him, is great, so that the wife who nurses a husband suffering from consumption, should get out in the fresh air as much as possible, and should do all in her power to maintain her own health. Wind instruments, and other similar articles which have been used by a consumptive person, had better be destroyed when no longer required for him; or should certainly not be used by healthy people without disinfection. Food should be well cooked, not only superficially, but throughout; and in the case of tubercular children, or of people predisposed to phthisis, it is a good plan to boil all milk. People predisposed to phthisis should select as a place of residence a house on a gravel soil, preferably on a slope facing the south. Those predisposed to phthisis should select non-sedentary occupations, and should be encouraged to spend as much time as possible in the open air in direct sunlight. People should be taught to value the importance of amusements of all kinds, and to recognize the danger of leading monotonous and depressing lives. The children of phthisical parents should devote much time to athletic exercises, and should not be allowed to follow sedentary occupations.

The indications for stomach lavage, states Einhorn, are either diagnostic or therapeutic. Diagnosis by this means will determine if the stomach is empty (lavage being done always in the fasting condition). If there be food found either stenosis of the pylorus or muscular inertia is likely. As a therapeutic measure lavage is done when the stomach is not empty on rising; for isochymia (stagnation of food in the stomach); in chronic gastric catarrh with superabundant mucous (every other day, and at longer intervals as the case gets better. The patient should not be permitted to lavage himself. Finding that the procedure results in a sense of well-being, he may make of it a routine measure, and come to rely unduly upon it); in acute poisoning, *except* corrosive poisons. Lavage is *not* indicated when there is gastralgia after meals, although it may be used occasionally in neurasthenics for the psychic effect; in anemia, in general asthma, and where heart failure is to be feared; in aortic aneurism and mediastinal tumors (perforation and death may result); in gastric ulcer there should be neither lavage nor the use of the stomach tube (the bucket should be used for an examination of the gastric contents).

THE PLEURA IN DISEASE.

BY WILLIAM WORMLEY, M.D., PHILADELPHIA.

SOME years ago Steele reported a curious case of pleurisy occurring in an infant only a few days old following the appearance of septicemia in the mother. The child had been nursed for a day after the mother developed fever and seemed to remain well for a day or two; it developed an acute pastro enteritis, became cyanosed and died in two weeks' time. The left pleural sac was filled with a sanguino-purulent fluid and there was catarrhal pneumonia on the other side. Steele has collected twenty-five similar cases in the history of this subject. He believes the infant was infected by the mother's milk. Another phase of pleurisy has been described by Welske in a case where he found peculiar parasites in the pleural cavity. The illness began with an acute pluerisy, followed by effusion, and the fluid contained thread-like parasites, some of which showed a spindle-like enlargement at one extremity; they were much like the *Cercomonas intestinalis*. Operation was considered, but the patient had a constant, violent cough and expectorated a large amount of pus, and afterward none of the parasites was found in the pleural cavity. These parasites did not grow upon culture-mediums, and when the infusion was injected into a rabbit pleural cavity pus was obtained which contained only staphylococci. Probably these parasites were merely a secondary infection.

The pleura is now regarded as connective tissue or lymph-space; the essential element of the pleura being the endothelial cell and its smooth and slippery plate. Beneath this are ordinary connective-tissue cells and fibres with their vessels and nerves; there is a very small quantity of fluid bathing the surface of the flat plates of the pleura, any excess being pressed into the opening or "stomach" which occur between contiguous cells and lead into lymph-vessels. The quantity is apparently regulated by the surface cells, which will not allow anything to pass through other than their own secretion, and the lymph-vessels, which carry away the fluid secreted. These cells perform the same office for the pleura that the endothelium of the Malpighian capillary does for the kidney, permitting the passage of certain things and refusing it to others, for in the glomerulus probably water only can transude in the ordinary normal state. So in the lung, the epithelium of the alveolus permits gas and water to pass through, but refuses passage to albumin and salts.

The fluid in the lymph-spaces in common dropsy comes from the capillaries and is on its way to the lymphatics; it is easy to see how the balance may be upset for any alteration in the walls of the systemic capillaries which permits a more rapid passage of their contained serum will tend to cause oedema. Any obstacle to the easy transit of lymph through the lymphatic will tend to cause accumulation in the lymph-spaces—that is, oedema. Dropsy of the pleural lymph-space is the same thing as dropsy of the subcutaneous and other lymph-spaces. In pleurisy without effusion of fluid there is migration of leucocytes through altered vascular cell-plates, and these form a membrane by means of fibrils. This dry membrane is the form of pleurisy commonly accompanying croupous pneumonia; the cells and fibrils of the membrane resemble the cells and fibrils found in the pneumonic alveoli. Occasionally white patches are seen in which the leucocytes have failed to spin fibrils, and

hence form small collections of so-called "pus." Again though some of the cells have spun fibrils enough to form a membrane, there are so many which have not done so—perhaps because the poison of the disease has killed or paralyzed them—that a purulent membrane can be readily stripped off the pleura as Churton has pointed out. There may be an excessive transudation of serum with only a slight migration of leucocytes and few or no red cells; this fluid coagulates spontaneously, in some cases, as in alcoholic patients; the fluid may contain few leucocytes and many red cells, so that a deposit of one-twelfth of the depth of the entire fluid may be formed by them, no coagulation occurring in the serum above them. Lastly, a great migration of leucocytes with a comparatively small transudation of serum and no red cells constitutes pus.

To speak and to write about "the treatment of pleurisy," without differentiating the varieties of pleurisy, is merely a laxity of expression, for almost all of us do, as a matter of fact, attend to the causation; yet occasionally it is proposed to treat a whole series of cases of pleurisy with effusion in the same way, as by tonics, or by purgatives, or by iodides, or by limitation of water to be drunk, or by frequent small aspirations, or, even when the fluid is not pus, by incision. But let us suppose that in a given case the effusion is due to alteration in the structure of the pleural cells, etc., by the rheumatic poison, no one would propose incision, or even repeated aspirations. But if we were perfectly sure that in four-fifths of all cases of pleuritic effusion, it was due to tubercular poison, we might, if we were making no headway by other means, try incision, knowing what we do of the good effect of draining a similarly affected peritoneum. Some thirty years ago the frequency with which phthisis followed pleuritic effusion was pointed out by a French physician. Some years ago, I in common with others, was struck by the benefit which followed the administration of salicylate of sodium in some cases of pleurisy, although in the greater number this drug failed. I was surprised and disappointed at the failure, for at that time I thought that, since many of the patients gave a history of chill or wetting as the cause of the seizure, just such a history as is frequently given in cases of acute rheumatism, the majority of the cases were probably rheumatic. It may have been, however, that the majority were tubercular, and that tuberculosis started on its career by chilling. Some authorities now claim that all cases of pleuritic effusion are due to the bacilli of tubercle; but this seems improbable. There is no apparent reason why there should not be as many different causes of disorder of the cell-plates, and consequent effusion into the pleural sac, as there are admitted to be for effusion into the sac of the hip or the knee-joint, for example. When we see a recently swollen and painful hip-joint in a child become normal in a day or two under the influence of sodium salicylate, we assert that this acute inflammation was rheumatic and not tubercular in causation; so when a similar thing happens in the pleura we use the same reasoning with respect to it, for it is doubtful whether salicylate of sodium will cause such marked and rapid amendment in tubercular cases. The temperature may fail; but usually, at least, the patient does not otherwise improve; rather he is worse; he perspires greatly, or he is deaf, or dizzy, or delirious, or his breathing is altered, and meanwhile the fluid does not diminish in quantity.

Where pleurisy has followed non-fracturing blows upon the chest it may be the tubercular or the rheumatic variety, the concussion or shock having the same share in the production of the pleurisy that is more commonly taken by chill and fatigue. Drunkards often acquire a pleurisy which is not due to either rheumatic or tubercular poison; salicylate of sodium will not cure them; and if they die, no naked-eye evidence of tuberculosis is apparent.

Senile pleurisy is a frequent complication of disease of the kidneys or of tuberculosis, and often follows pneumonia, for it is rarely primary in advanced life. One cause of considerable importance is pulmonary infraction; in old persons there is a tendency for pleurisy to develop on one side and to be followed by involvement of the other pleural cavity before the first attack has disappeared.

S. Lewis, in the report of a case in which aspiration of the pleura was undertaken for the removal of an effusion, states that the day following the temperature was much elevated and continued high, with the appearance of general septic intoxication. The autopsy disclosed an abscess containing about 10 oz. of pus in the lung, at the point at which aspiration had been undertaken. It was believed that the needle had carried septic material into the lung, and had caused the rapid abscess-formation.

Rendu describes three cases of putrid pleurisy in which anaerobic micro-organisms were found in abundance; two cases were cured rapidly through washing the pleural cavity with potassium permanganate. The third improved less rapidly under the use of corrosive sublimate; and Rendu decides that such cases are much more curable by potassium permanganate than to other methods. Janeway reports two attacks of temporary hemiplegia in an individual with a sacculated empyema, both attacks taking place after the use of hydrogen peroxid to irrigate the sac. In the first attack the man became pale and lost power in the right arm and leg for about half an hour. He had a similar attack three days later with marked dyspnea. He mentions two similar cases; and it is suggested that the attacks were due to gas-embolism, the gas probably being oxygen. Prozorovsky has used a mixture of guaiacol and tincture of iodine, one part of the former to four of the latter, as an application in serous pleurisy, painting it on twice daily and covering it with an impermeable dressing. He believes that the exudate was absorbed more rapidly than by any other method of treatment with which he had experience; and unless too many applications were made, it caused no irritation.

I will quote a case of tubercular pleurisy to diagnose it from rheumatic. A man, aged forty, a clerk, was admitted with alcoholic face, and stated that he had been drinking freely. In addition to a pleuritic effusion on the left side he had some cough and expectoration; which had begun a fortnight previously and had followed a wetting. His mother had had rheumatic fever twice; his father died at middle age of some obscure disease of the chest. He, himself, had had no illness beyond dyspepsia from drinking. After the wetting he had shivering, but had no pain in the joints or in the chest; cough with expectoration existed from the first day. Fifty ounces of fluid were drawn from the left pleura. The salicylate was tried, but even small doses disagreed, for, though the temperature fell at first, it afterwards rose in spite of the drug and strict

milk diet, proving, as it seems, what had previously been suspected, that in this case the disease was not rheumatic, and with other facts, suggesting that it was tubercular. Under treatment by quinine, iron, and strychnine the temperature fell and the patient being greatly improved was discharged.

Here there was heredity weakness of lung and pleura; in addition, these tissues suffered with the others, from want of reparative material; lastly, the wetting reduced them to a state of incompetence to destroy the tubercle bacilli which happened to be present. Food and tonics, with rest and the removal as far as possible of all adverse influences restored his tone. Cases of tubercular pleurisy recover in very various modes and times; some slowly and regularly; some, after long delay, at last very quickly; some with tonics; some with change of air or of house; some with change of drugs or of diet. The greater number of cases of pleurisy recover under ordinary care, though, unless the causation be completely elicited and each element of it separately attended to, removed or opposed, the duration of a given case may be very long.

In rheumatic pleurisy there is apt to be an affection of joints, which appeared to be rheumatic, followed pleuritis. The following report is of a patient admitted for pain in the left side and palpitation. Temperature 104°, pulse 104, respiration 30. Heart-sounds were normal; cough, but no expectoration; at left base dullness and diminished vocal fremitus; friction-sound over upper lobe from second interspace in front; sharp pain on inspiration. The pain was in the ankles, knees, and shoulders, chiefly, but was described by the patient as shifting from one joint to another. Pain also returned in the left side, but no friction could be heard. It will be observed that, as often happens in rheumatic cases, the temperature did not fall until a strict diet was insisted upon. Of course there are cases of rheumatic pleurisy without other signs of rheumatism (arthritis, pericarditis) but it will be difficult to prove this on account of the variability of cases both of rheumatism and of tuberculosis as to duration and mode of recovery. Until we are able to find bacilli or their products with ease and certainty in the pleuritic fluid, it will be hard to assert the causation with confidence; a long series of coincident administrations of salicylate with prompt recoveries is necessary to establish an opinion that the drug is an absolute cure for a certain sort of cases; under new and improved conditions of life a peritoneal effusion, which there is much reason to consider tubercular, will sometimes be absorbed in not many days. On the other hand, may not some cases of ascites be rheumatic in origin? The pleura is less frequently affected by the rheumatic poison than the joints; the peritoneum than the pleura.

The association of pleurisy with peritonitis is interesting. If two simultaneous lesions are related to one another, it may be because one, A, is the cause of the other, B; or because B is the cause of A; or because both A and B are the results of a common cause. Thus, in this case the pleurisy may have caused the peritonitis, or the peritonitis the pleurisy, or they may have been both the results of some common pathological condition.

When the two inflammations are found clinically to be on the same side of the body, the question arises whether the process can have spread from one cavity to the other. Such transmission undoubtedly does take

place between the peritoneum and the pleura. But the spread of mischief from the peritoneum to the pleura is very much more frequent than its transmission in the reverse direction. Of the very numerous cases of pleurisy and empyema that one sees, how infinitely rarely is it that the inflammation spreads by contiguity to the peritoneum. Though such cases cannot be said to be actually common, still there are many on record where abscesses in the peritoneal cavity have perforated the diaphragm, and have set up pleurisy, empyema and pneumonia. Here were in all eighteen cases of peritoneal abscesses, resulting from injury, gastric ulcer, disease of the appendix caeci and other causes. In twelve of these the chest was implicated. In eleven the primary lesion was obviously in the abdomen, and the inflammation had extended to the chest, frequently, by perforation of the diaphragm. Only in one was the course of events doubtful; and Taylor quotes a passage from a post-mortem examination, gave for believing that the course was from above downward: "The following case is very similar to those above recorded, except that the abscess was on the convex side of the left lobe of the liver, and that there was a perforation through the diaphragm, leading into the left pleura. One is therefore tempted to believe that it was of the same nature as the others. It would appear, however, that Dr. Moxon, who conducted the post-mortem examination, regarded the case rather as one of empyema, penetrating the diaphragm downward and making its way into the abdomen. His main reasons for taking this view seem to have been the circumstances that the aperture through the diaphragm was wider on its pleural than on its peritoneal aspect, and that the floor of the pleural cavity also presented some other small excavations, which penetrated to the subserous tissue. He also thought that the old adhesions of the lung to the diaphragm had fixed it so as to favor its perforation."

Taylor says that his subsequent experience has been in accordance with the remarks of that paper—that pleurisy is much more frequently caused by peritonitis than peritonitis by pleurisy. The existence of pleurisy and peritonitis is still more frequent as a result of a common cause, and that cause tubercle. The tubercle bacilli may be a fertile cause of inflammatory lesions in two or more parts of the body at the same time; and therefore, when we have associated inflammations in the different serous cavities and in the meninges—such as peritonitis and pleurisy, pleurisy and pericarditis, pleurisy and meningitis—the question of tubercle should be considered. The possibility of the spread of contiguity must not be forgotten. A left empyema is sometimes followed by pericarditis without tubercle, and there are the cases we have just been considering of transmission through the diaphragm. Other general infectious diseases, like pyemia and scarlatina, may also produce similar results. But tubercle bacilli with its fearful prevalence among us, has a special claim to be remembered. I can recall the case of a child who came in with pyrexia, abdominal distention, diarrhea and loose yellow motions, and a few doubtful rose spots. For a time the resemblance to typhoid was close; after a time there was a pericardial rub; then came convergent strabismus, weakness of one arm, and the child quickly died. The post-mortem revealed general tuberculosis, as you see, in the three cavities of the body, head, chest, and abdomen. A man sixty years of age was admitted for

jaundice of twelve months' duration. Cancer was suspected, but the view was not borne out by anything but the fact of a prolonged jaundice at an advanced age. Shortly after admission he developed a pleuritic friction sound and signs of pleural effusion. Then he had a pericardial rub; finally he had convulsions, became unconscious, and died. He had general tuberculosis; supervening upon and independent of the cause of his jaundice, which was the impaction of a moderate-sized gall-stone. In tubercular cases the temperature and the family history are vital. Can one rely upon pyrexia as a means of diagnosis of tubercle; not when it is known that extensive inflammatory lesions are present and it is sought to discriminate their possible causes, for pyrexia results from serous inflammation, from purulent inflammations, as well as from the formation of tubercles. It is true that highly remittent and intermittent forms of pyrexia—that is, pyrexia with much variation between the low morning and the high evening records—are less likely to occur in serous inflammations than in purulent and tubercular lesions. One of the first suggestions with regard to one patient's death was that it was due to pulmonary embolism; he was leaning out of bed, or reaching under it, when he was seized with thoracic distress, dyspnea, and lividity. Cases of pulmonary embolism are described as having suddenly embarrassed respiration, dyspnea, distress and gasping, cardiac pain, coldness and clamminess of the skin, pallor or lividity of the face, feebleness or suppression of the pulse. With most of these conditions this case agrees but the pulse was not specially affected until after our attempt to tap him, when it suddenly failed and death rapidly supervened. The clot in the pulmonary artery was possibly of embolic origin, but the source in the venous system from which it could have come was not found. If any clot in the pulmonary artery was an ante-mortem thrombosis, it might have formed in the period of his agony, and could not have led to his sudden distress. It is, perhaps, more likely that the presence of the fluid in the chest and abdomen simultaneously sufficiently disturbed his respiratory and cardiac functions to upset them entirely when an additional strain was put upon them, for of itself, two and a half pints in the chest is not a very great amount; a patient may not be very uncomfortable with four pints; and as I have known eight pints and nine pints respectively removed from the chests of patients, it is obvious that life is compatible with very much larger quantities than that present in this case. But the effects of the pleural fluid were aggravated by the tension in the abdomen, and it was two days before his death that we had urged upon him the course of treatment by evacuation of the fluid to which he objected. We should thoroughly have evacuated the fluid from the abdomen, and the chest would have been aspirated. That the treatment would have been permanently successful is not very likely, for the scattered tubercle in the lungs showed the presence of some fatal lesions.

Aufrecht who obtained good results in recent years in treatment of pleurisy depended in a great part upon the use of salicylic acid. But salicylic acid, not salicylate of sodium, was used, for the salicylate is weaker and produces marked secondary effects. When the pure acid is given in wafers, patients must always be admonished to follow the dose with a copious draught of water, in order to avoid the disagreeable burning feel-

ing in the stomach which would otherwise follow.

If in the first eight days no diminution of the exudate occurs, Aufrecht counsels not to conclude that the salicylate acid has proved useless, but stop it for a day or two, and then begin again the dose of 6 grams (90 grains) a day, in divided doses of 1 gram, and so continue the treatment for several days, with interruptions of a day or two. As soon as the salicylic acid treatment proves ineffective, the fluid should be withdrawn by aspiration. Fever is not contra-indication to the operation; on the contrary, the earlier the operation is performed the sooner will the remainder of the exudate be absorbed. The patient should lie upon his back, and Aufrecht selects for the point of puncture the fourth or fifth intercostal space between the anterior and posterior axillary lines; patients without exception, according to their age, receive from one-sixth to one-quarter grain of morphine to allay the cough which ensues from expansion of the lungs following the operation. Subsequently a dram of salicylic acid, on the average, is given daily for several days.

Thoracentesis is such a simple and safe procedure that we scarcely realize that a serious accident may occur. It should not be a handicap but simply serve to make us use care in performing the trifling operation. There is one curious little known complication following tapping of the chest to which Loomis calls attention. It is albuminous expectoration. Loomis reaches the following conclusions: albuminous expectoration is a rare complication of thoracentesis; it is usually serious and occasionally fatal. It consists in the expectoration of a viscid albuminous fluid closely resembling serous effusion; it is best explained on the theory of an intense congestion of the lungs (congestion by recoil). The principal cause seems to be too rapid or too great a withdrawal of fluid while the predisposing causes are serious cardiac disease and morbid conditions of the opposite lung which prevents expansion. This teaches us that under all conditions, especially when these complications are present, aspiration must be performed slowly. The amount withdrawn at any one time must be moderate, no matter what is the size of the effusion. So that it may be wise to perform several tapplings, drawing off a small quantity each time. The treatment of albuminous expectoration consists in the use of morphine if the cough is severe, with counter irritation, venesection and artificial respiration.

The prognosis in pleurisy has been studied most scientifically by Salanove-Ipin, who has endeavored by the use of statistics to decide definitely these vexed matters. While some authorities claim that all cases of pleurisy are tuberculous unless proved to be otherwise, this has been denied by others. Salanove-Ipin collected his observations from the sailors in the French Navy. He collected 352 cases of primary sero-fibrinous pleurisy; thirty-two died during the attack and over thirty-one after leaving the hospital. Of these eighty-four showed definite tuberculous affection; in nineteen the cause of death was unknown. Thirteen showed no sign of tubercle, while fifteen were lost at sea. This shows the enormous proportion where tubercle was present and probably in the nineteen where the cause of death was unknown, were included some cases of tubercle, as a rule tubercle appears shortly after the outbreak of the pleurisy.

The Roentgen rays are capable of showing the pres-

ence of fluid and can be used in doubtful cases. From the density of the shadow, the operator can decide whether the fluid is pus or serum.

NATURE AND TREATMENT OF HEADACHES.

BY A. C. GRIGGS, M.D.

FIRST comes the question of permanent headaches, such as last for years and are rarely absent; such pain does not as a rule incapacitate a patient for his daily work. Weir Mitchell has reported several cases where most successful men have never been free from headache since childhood. These headaches are due to many causes; besides, they may exist with other kinds of cephalalgia.

Simon gives the following causes for the headache of childhood: growth, fatigue, mental overstrain, digestive trouble, different neuroses, gouty and rheumatic diatheses, anemia, toxic nasal, naso-pharyngeal ear and eye disorders, and meningitis. "Headaches of growth" appear especially in the morning, occupy the frontal and vertical regions, being increased by motion; they should be treated by tonics and rest. For the headache of commencing hysteria he recommends hydrotherapy, and thinks that tonics, and especially iron, are useless; the bromides are inferior as anti-spasmodics to valerian, aconite or phenacetin. The headache of epilepsy is characterized by an abrupt attack accompanied by cerebral torpor, and is for some time the equivalent of the convulsion; early treatment by bromides and belladonna is here most important. Gouty and rheumatic headaches are rare in children, but when present are often accompanied by decided congestive phenomena simulating meningitis.

Trusevich recommends a 1 per cent. alcohol solution of nitro-glycerin in headaches. In a very obstinate case, however, a 10 per cent. solution was used, 2 minims being first given, after an interval of three minutes, 3 minims more. As a rule, two or three 1-minim or 2-minim doses of the 1 per cent. solution placed on the tongue at intervals of a few minutes arrested headaches; he says that all cases depending on a vaso-constrictor neurosis are curable by nitro-glycerin. Naegely relieves neuralgia of the fifth cranial nerve by raising the hyoid bone and the larynx by means of the thumbs, the index fingers being placed behind the ears.

Headaches are very common in children of school age. Warner collected notes of fifty-eight cases at the East London Hospital for Children. The principal symptom complained of in each case was recurrent headache. The other points of complaint among the children was thus summarized: these children were excitable, passionate, melancholy or fretful; sleep was restless, disturbed by night dreams or attacks of terror, screaming, or somnambulism; they were often spoken of as fidgety. The appetite was varying, voracious, or entirely lost, the two conditions often alternating in the same case; there may be progressive emaciation and loss of weight with good appetite and without signs of organic disease; often accompanying the headaches there were nausea and retching. The emaciation, with dry, hacking cough, often led the parents to suppose that there was consumption, though stethoscopic examination and subsequent recovery of health showed the absence of disease. Studying each child as to the nerve-condition after the manner indicated above

with the additional facilities of the consulting room, further points were observed. There was much general unsteadiness or spontaneous movement of the body—fidgetiness, the teacher may call it, semi-chorea, the physician may term it; the face may present twitches about the angles of the mouth or perpetual winking, the eyes move much, apparently not under control of objects seen, the tongue, when protuded, without being jerky, may present a vibratory or tremulous movement of its parts. The fingers are likewise twitching, as seen when the hands are held out. A general condition of over-spontaneity is seen, but still this may be co-ordinated for useful action by word of command, so that the child is not said to be choreic. The balance or attitudes and postures in these children were abnormal as well as the movements. The hands when held out usually balance in the nervous posture, especially if the fingers are separated, and this is often accompanied by finger twitches; these points are mostly marked in the left hand, which is often held at a lower level than the right. The weakness of the nerve-muscular system may be further indicated by lordosis, owing to weakness of the muscles of the back; exhaustion of the system may also be indicated by a toneless expression of the face and fulness under the eyes. The teeth when examined were often found ground down, the canines or incisors having lost their tips and sharp edges, owing to frequent teeth-grinding at night which may have been heard by the nurse; the masticatory muscles are supplied by the fifth cranial nerve, which also sends sensory fibres to the meninges. The urine in these cases presents characters similar to those met with in chorea; it is usually scanty and dense; specific gravity 1022-35, without deposit of lithates or phosphates, but dense with urea, which may be precipitated in the form of crystals by mixing with an equal volume of nitric acid and cooling, when the urine often becomes solid with crystals. Children of this group, like all neurotic cases, are liable to varying mental moods and conditions of disturbance.

In headache due to astigmatism, the pain does not always restrict itself to the brow or the eyes; frequently there is a binding sensation of pain through the temples. In many cases the greatest suffering is in the occipital region, or in the back of the neck, even extending down the spine. In some, uneasiness in the stomach may produce nausea, with chest-constrictions and even heart palpitations. It is on account of the reflex annoyances from eye-strain that the eye affection is frequently overlooked. The symptoms are mistaken for the primary disease. The headache belonging to the eye-strain is attributed to various causes, depending somewhat upon the bent of the physician's training whether he considers the liver the chief disturbing element in the body, or sees the baneful influences of neuralgia in every systemic derangement. As Chisholm has pointed out, if the person has a uterus, it concentrates all the attention of some physicians, who find in the term "womb-disease" a talisman that does away with the necessity for any other diagnosis. The patient often runs amuck of the doctors; treated for biliousness by one, for dyspepsia by a second, for neuralgia by a third, for malaria by a fourth, and, if a female, for uterine irregularities. The only marvel is how confiding patients submit month after month to these varied opinions, feeling all the time that they are not taking one single step towards permanent relief. When they rest, let them take whatever medicine is given them, they get better of the head-dis-

turbance. When they take up their work again, headaches follow. It takes these unobservant patients years to find out this sequence, wading through long, tedious, annoying, and depressing courses of treatment before the discovery is made that the eyes are the cause of the whole trouble. If the sight is positively faulty, relief is much more likely to come early, at least in the large cities where eye specialists can be conveniently consulted. It is those that have apparently good sight that suffer so long at the hands of general practitioners, spending their substance in the vain search for the cause of their persistent headaches. An astigmatic headache does not require the taking of temperature, counting the pulse, or an examination of the tongue. Because a patient does not have an action from his bowels every day and suffers with headache, do not imagine that he needs purgatives. Astigmatism is not a disease to be treated by drugs; it means a defective shape of the eyeball, a mechanical fault in the form of the cornea, to be corrected by mechanical appliances, as a short leg is made to work well by a thicker heel. This faulty shape interferes with the proper working of the eye as an optical instrument. It demands an overtax on the part of the eye-muscles to bring about a needed effect. It is an eye-strain that causes pain in all parts of the head supplied by the fifth pair of nerves, the nerve of common sensation to the entire head and face, including the eye. Provided the inner chamber of the eye is properly faced with pigment, it matters not what the visible color of the iris is, so far as good sight is concerned; it is important, however, that the curvatures of the cornea be uniform in all directions, so that light passing into the eye, to make pictures upon the retina, will be perfectly focussed. Under this condition, the retinal picture, however microscopic, is sharply defined, and our sight is correspondingly clear and comfortable. In the eye are strong condensing media, with great magnifying power. They are designed to concentrate light to a short, sharp focus. This act is disturbed if the transmission of light through the front of the eyeball is not uniformly accomplished. Astigmatism means this interference of the direction of light entering through the glassy window of the eyeball. In astigmatism the shape of the eyeball is altered, as if it had been squeezed laterally out of its true ball-form. This destroys the uniformity of the various diameters of the cornea, making some a little longer or a little shorter than they ought to be, drawing in or flattening out the curved surfaces of the cornea corresponding to those changes in the diameters; these irregularities disarrange the focussing power.

The frequency with which the triad of symptoms—headache, vomiting and optic neuritis—occurs in cases of brain tumor is such that they have been singled out as being most distinctive, but they are not entitled to the distinction of being called pathognomonic; for in the first place they are not all invariably present, and in the second place they do not occur in the same conjunction in uremia, lead-poisoning, and hysteria with anemia. However, their co-existence is presumptive evidence of tumor or other "coarse" anatomical lesion, and when they occur the burden of proof that the condition is of another kind rests on those who maintain that it is so. Headache is of various kinds and degrees, and its causes are multifarious. Circulatory disturbances, as in heart-disease, blood states, as in anemia, uremia, and gastrointestinal derangement such as constipation, may provoke it, being either purely superficial and neuralgic, or

deeper seated and depending on what may be termed a nerve-storm, as in migraine; just as epileptic convulsions are excited by gross organic changes, so, too, the sensory convulsion of paroxysmal headache is produced by organic brain-disease. One can understand the pain which accompanies meningitis or cerebral abscess, but the precise reason of the agonizing attacks of pain in cases of cerebral tumor is hard to seek. Roughly speaking, the seat of the headache corresponds with the sight of the intracranial lesion; a cerebral tumor often produces occipital headache more frequently than it does frontal, and a growth on the convexity may give rise to pain referred to the vertex; it does not do, however, to rely upon this as a localizing sign, for in many cases the pain is frontal, whilst the growth is imbedded in the brain-substance or at some far distant point on the surface. The intensity of the pain is not proportionate to the size of the tumor, nor, indeed, to its rate of growth; whilst its paroxysmal character is a feature that it shares in common with headache from other causes, varying from a dull sensation, as of a heavy weight or compression, to an acute, shooting, well-nigh unbearable pain, closely analogous to that of pure neuralgia. It is possible that the paroxysmal character of the pain bears some such relation to the intervening period as the epileptic "discharge" does to the exhaustion which ensues after a fit. The sensory centre may have its cells exhausted by the intensity of their overstimulation. Headache due to the increased pressure jamming the meninges against the bone, and thus pressure is exerted upon the branches of the fifth and other nerves which supply the meninges. This headache, which is rarely or never absent in cerebral tumors, is often at first paroxysmal, but later on it becomes constant. It is usually very severe, and often keeps the patient awake at night. Be especially careful in any case there is a very strong probability that it is not functional. The headache may be most intense over the tumor, but this is exceptional; usually it is diffuse, as in our patient, for the increased pressure is felt equally in all directions. The pain is more frequently localized over the tumor in cerebellar tumors than others, because the cavity of the skull below the tentorium is a little cavity by itself, and therefore especially feels any increase of pressure within it. Occasionally when the tumor is near the surface of the brain there may be a tender spot on the skull. The most common mistake made about the headache of cerebral tumor is to conclude that because a patient has headache and difficulty of sight a cerebral tumor is present, when in reality both the symptoms are due to hypermetropia.

As Mitchell states, a man may be subject to two, or even three, kinds of headache, for example, a patient with a permanent vertex headache may thus be cured of an occipital ache due to eye-strain, and continue to suffer the more constant parietal pain. The fact that two causes for cephalalgia may exist is apt to deceive; thus, a patient comes to you with violent frontal aches, and with occipital pain. He has compound astigmatism, and, perhaps, inefficient eye-muscles. Sure of your diagnosis, you have him glassed and predict a cure. The occipital pain leaves him by degrees, and the vertex or frontal pain is unchanged; was it also due to eye-strain? That is not always easy to say. Some oculists think that if you glass a man with an approach to accuracy, you have done all that is possible for the optical aspects of the case. There are sufferers from headaches due to defective eyes who cannot endure very exact cor-

rection without increase of pain; there are others who find full relief only when the correction is very accurate; there is always an unknown quantity in our therapeutic equation, even when we deal with the optics of the eye, which, theoretically, should be near to perfection. Mitchell called the attention of the profession to the cerebral results of eye-strain in 1874. He has rarely seen very constant headaches due to this cause. "The intracranial distress from eye-strain comes and goes, and if the trouble is typically hemispherical it is apt to be caused, even if it may be intensified, by defective eyes. I have sometimes, however, had a clinical suspicion that it is possible for imperfect eyes, long used to excess without correction, to give rise to a condition of occipital headaches, which may be called permanent in the sense that it continues for years to survive the cause. What I might call a diagram of a case will help us to understand this sequence. A young girl between thirteen and sixteen, ambitious to excel, works her brain through too many hours daily and through her 'menstrual Sabbaths.' As a consequence, she has a variety of intracranial symptoms; especially occipital pain. After years of such folly, the pain having become constant, some one discovers that she has muscular insufficiencies and perhaps other defects. The muscles are cut, or prisms are used. The right thing is done, we will say; but, nevertheless, no matter how well we may have corrected the eyes, the pain remains. This is not an uncommon story. What has happened to make this headache or distress in the occiput permanent; usually a physician concludes that the eyes, however much out of order, were really not to blame, and yet as to this he may be more or less wrong. The mischief has lasted long enough to leave in the brain tissues some lasting result of a too-protracted strain, and we have, as a consequence, either permanent or very frequent headache. To insure these lasting consequences, the evil must have been at its height during the formative period. The brain in its completed growth (if ever it be capable of normal change) is certainly more enduring of strain, and is, after adolescence, less capable of being permanently damaged by eye-strain. Of the nature of the evil thus brought about by the use or abuse of imperfect eyes, we know nothing. My guess would be that the centres affected are left either in a congested state or with a capacity to become congested by use, even reasonable use. At all events, permanent occipital distress from long eye-strain is apt to be accompanied by symptoms which indicate an excess of blood in the organ affected; permanent headache may result from bad eyes, that the best correction does not always cure it at once, and that they are headaches, the conjoint product of ill health and eye-strain, which are practically incurable. Mitchell proves this by a brief relation of a case.

I. C. Aged thirty-five. An active clergyman, single, has permanent occipital pain, with occasional increase and addition of general headache. The trouble dates from puberty and seminal emissions, with general failure of health. Despite this, he studied hard, acquired intense headaches with vertigo, gave up brain-work; got well; read hard and renewed the pain, and at last, after many reliefs by rest from work, acquired a persistent occipital ache. After a time, with gain in vigor, he entered the church, and, accepting his pain as almost a normal part of life, continued to attend to his work. He glassed with care, over and over, and every attention given to his health, which was never fairly good. Nevertheless,

he continued to suffer, and is no better after years of perfect correction. All continuous use of the eyes adds to his pain. I still think that there was a permanent evil wrought in his brain from ignorant use of eyes which were utterly unfit for work without glasses.

Trauma may also be responsible. A slight injury causes in the young hyperostosis; the bone remains somewhat thickened, with no marked depression, but there is a limited area of adhesions of the dura without clear evidences of present inflammation. These conditions may give rise to nearly constant pain, great sensitiveness of head, incapacity for study, and frequent unendurable additions to the permanent distress. In such instances there is more or less adhesion of the dural surfaces, and as these no longer play smoothly over one another, the normal movements of the brain are restrained, so that possibly headaches may, under these circumstances, represent for us in the cranium just what painful stitches in the side do in the presence of old pleural adhesions. Probably, too, the dural nerves, or all the meningeal nerves lying amidst these old inflammatory products, may themselves suffer directly, as well as indirectly, and so these old headaches merely be significant of the related branches of the fifth nerve. It will be worth the while to learn if this be so. Very persistent headaches may be caused by the toxic influences of renal disease, but, as a rule, uremic headache is inconstant. This is not the rule in some instances of diabetes mellitus. I repeat, "in some instances," for headache is not always present in this disease. A very interesting example of absolutely continuous headache belonged to one of a family in which two brothers and a father all died of diabetes in middle life. The remaining brother consulted me on account of incessant headache occupying generally the partial and frontal regions, but at times intense also in the occiput. He had very bad eyes and a high degree of myopia with astigmatism. Naturally, use of the eyes gave rise to occipital pain, or increased all the pain, so that all of his trouble, cause in the eyes can be blamed for all of his trouble, especially as his general health was as yet unimpaired. Glasses failed to aid him; then the oculist discovered that he had a certain amount of muscular inefficiency, and confidently predicted relief from prisms or an operation. Nevertheless, the headaches grew worse. It happened that his water had been examined before, but only the night urine, and in this, until later in the case, there was never more than a trace of sugar. Every form of treatment failed to relieve him until I used a diet of skimmed milk. Under this he lost his headaches with all trace of sugar in the urine, but it was never possible to add to his diet even meat alone, without causing a return of sugar to the urine. After a number of efforts he continued to live on milk alone, and did so for seven years of an active business life. For some reason his eyes ceased to annoy him whilst he took only this simple diet, and this also is an experience I have had more than once, for milk diet has in some people a singular power to lessen the irritability of parts, such as the bladder. In other terms, whilst in health, or at least free from glycosuria, he was able to bear unhurt the strain the eyes must have caused, for he was soon able to lay aside his glasses without feeling their loss. It seems quite certain that asthenic people, especially if anemic, may become subject to very lasting headaches, which are always present in less or great degree. These are dull aches of a part or of the whole

of the head, and, affect, too, the upper spine, and of course, at times become severe. I have now such a case under care, and in it there are certainly three headaches. One is a constant ache of the vertex and frontal region, which has lasted three years, with flushed face, and more or less throbbing on use of the brain, or from excitement, emotion, or prolonged exercise. Then there is also an inconstant occipital headache due to eye-strain, and, lastly, attacks one in two or three weeks of typical neuralgic migraine, with mild ophthalmic prodromes and nausea. The asthenia were both extreme, but yielded readily to the "rest treatment," after all else had failed. The migraine has become less severe and less frequent, as is apt to happen when the level of health is lifted, but the occipital ache is still brought on by use of the eyes, though it will now, I believe, yield, the patient having become able to endure the trial of a full optical examination. I hesitate just where to put the not rare cases of children below the age of puberty, who declare that they are subject to constant frontal ache, which increases whenever they study, and is apt to become severe an hour or two after school-hours begin. In some cases we can exclude malingering, digestive disturbances, eye-strain, and, in fact, every other ordinary cause of headache, and find ourselves driven to believe that use of the brain for study in the growing child is sometimes capable of giving rise to steady headache, with flush of face and cold extremities. There remain for consideration rare cases of permanent headache in the adult, for which so far, I can find no satisfactory explanation. Here is an illustration. A man, fifty, of active mind and wholesome body, consulted me last spring on account of headache. He said, "When I was about sixteen I had to work hard all day, and tried at night to educate myself. After three years I began to have headaches, which were certainly increased by the hard use of my brain. These became more common until I had, when about twenty years old, a constant pain; I may say that it has never left me. At times, I forget it; at times it is worse, but I can rarely say now what will so increase it, except to be costive does this, but also too sharp purging makes it severe. Certainly excessive physical work will do this. It is usually a dull ache of the front half of the head, but, if bad, the whole head aches. Very rarely, of late years, I have added a pain over my left eye and sick stomach, but this is different." Despite the headache, he had led an active life of large affairs, resulting in unusual success. Within two or three years his headaches were at times far more severe than had been the case, and also he had begun to have rheumatic aches in the extremities and back. The most rigid examination excluded malaria, obvious gout, the eye, the kidneys, and the stomach, as parents of the pain; nor was it possible to indicate a suspicion of a cause. His blood was in good order, and if he might have been said to have been a little below in the standard of high health, this was all. A course of tonic treatment helped him in a measure. He was enabled to sleep better, to eat with more appetite, and to exercise with less fatigue. But, nevertheless, the headache remained much as it was before, despite the most varied treatment by many able men. There can be no better example of this unpleasant, and fortunately rare, disorder. I could easily multiply cases. The one I mentioned at the beginning illustrates the fact that sometimes these aches disappear at about the age of fifty."

The headaches of hysteria are often permanent, and those rarer cerebral aches which arise out of an idea, and which you may also label as hysterical.

Frequently if we lift the health-level, it will enable drugs to act favorably, which have failed to do so until this has been done. I have now in my care an example of violent ophthalmic migraine occurring at least twice a week in a notably asthenic woman; every effort to help her failed, and travel, spas, tonics, and cannabis in large doses were tried in vain. After adding to her experiences of drug failures, I laid aside all means but "rest treatment," under which she rose readily seventeen pounds in weight, and acquired an excess of blood-corpuscles. The headaches became far less frequent, but remained nearly as severe, until now, under moderate doses of hemp, they have rapidly lessened both in number and severity. I do not know how cannabis acts in these cases, but I do know that it does best with those who are best off as to health. In the last case mentioned there was a nearly a complete cure as one is likely to get in migraine. She still has a headache, and not a bad one, before or after the menstrual period, but at no other time. I wish here to return to the question of the treatment of permanent occipital and other distress, the undoubted offspring of excessive mental labor with uncorrected and imperfect eyes. The eyes are corrected, great results promised, but, alas, little gain is seen. If the man "with blinded eyesight, pouring over miserable books," will go and live in the woods, where he has no books, rest of the eyes and the tonic of outdoor life will in time make him well. Or, if he or she cannot do this, it may be possible to do more artificially what were better done naturally. The centres which govern the accommodative movements, or those of the eyeball, have so suffered as to be unable painlessly, or without causing distant reflex consequences, to carry on their functions, even when aided by glasses. Is a permanent tire of brain-centres possible? I cannot say. Assuredly, permanent results of incessantly-repeated fatigue are very possible. As a consequence of this we may rest sure that it is not enough in some cases to glass the eyes, for a mischief already done before they were glassed may defy such good as the best correction assures. I have seen such cases cured by ordinary toning influences. Any are more desirable than what is called "rest treatment;" but where all others fail it may succeed. No matter how we restore health, when we do so thoroughly, the centres cease to feel as acutely. Their power is more easily exerted, and with less strain; and then, with the aid of a lightly-applied frequent cautery to the neck, and cold douches to the upper spine, we may hope to get rid of the consequences of years of eye-strain. It was useless to make the patient well as to all other organs while the eye remained uncorrected; as useless to correct these and expect perfect relief if the case be an old one and the general health remains much impaired. A full acceptance of these truths would save a good deal of disappointment after even the best correction of optical defects.

Electrotherapeutics in Chronic Diseases.—J. H. Kellogg, (*Modern Medicine*, Nov. '04) prefers the sinusoidal to the faradic current, the latter being often painful. Electricity is capable of accomplishing wonderful things, both when applied exclusively to conditions in which it is specially adapted and in conjunction with other measures. It is a physiological remedy.

INFANTILE SCURVY.

BY A. R. WILLIAMSON, M.D.

NO department of medicine has made as great progress in the past ten years as had diseases of the blood. There has been a constant widening of the horizon until physiologists, pathologists and clinicians are almost aghast at the amount of data which had lain undiscovered. Not only have the studies improved our knowledge, but they have been of practical value in aiding in the treatment of many diseases with success and increased skill, while others, such as the one the title of this paper, are practically modern diseases.

Since 1894, when Northrup and Crandall read their paper on Infantile Scurvy before the New York Academy of Medicine this subject has attracted great attention. Even in Cuba the investigations have progressed, for Duenas had looked in vain for an instance of the disease in his practice in Havana until 1898, when he had the opportunity of seeing one case of the ordinary type. In consequence, Duenas believes the severe forms of infantile scurvy are rare in Havana, especially considering the present condition of that city. However, a possible relationship in very young children between a severe type of infantile scurvy and a form of pernicious anemia is suggested by Duenas, who reports a patient, a mulatto child of twenty-four months old. After being weaned at six months the child was kept on a diet consisting principally of rice; this diet was badly borne and the patient suffered frequently from indigestion, diarrhea and fever. On examination there was great pallor and emaciation with poor physical development, but no evidence of rickets nor of any other disease, excepting that the left lower limb was swollen and painful. The borders of the gums were purplish, but neither spongy nor hemorrhagic, while the stools were abnormal and fetid. On fresh cow's milk and the juice of an orange every day the scorbutic swelling of the leg rapidly disappeared and the child improved. But this improvement was not lasting, and a few weeks later the child became more anemic. In an examination of the blood Laveran's plasmodia were not found, nor was there any agglutination of Eberth's bacillus, but an advanced poikilocytosis existed and a large number of macrocytes and microcytes, characteristics of progressive pernicious anemia. The child died finally. Duenas calls attention to the fact that the etiological factors of scurvy were present in the premature weaning and an excess of farinaceous diet. The clinical symptoms of scurvy were also well marked, and there was a rapid disappearance of these symptoms under antiscorbutic treatment. Yet the diagnosis of what might be called a secondary pernicious anemia was plainly justified by the clinical symptoms and the microscopic examination of the blood. The unfavorable character of the case after the first improvement in response to antiscorbutic treatment, also favors the diagnosis of a grave degenerative affection of the blood, but the exact relationship of these two conditions is, of course, difficult to determine. It is well known that symptoms simulating pernicious anemia sometimes occur when the system has been much depressed.

Starr defines infantile scurvy to be a constitutional disease occurring generally before the end of the second year, depending upon continued faulty feeding and presenting a well-defined complex of symptoms. These characteristic features are: immobility, progressing to

pseudoparalysis, intense hyperesthesia, and general swelling situated most frequently in the legs, but not limited to these members; the investing skin is shiny and tense, but there is neither edema nor local heat, and subsidence of the general swelling reveals deep fusiform thickening about the shafts of the long bones in the neighborhood of the joints. The gums about erupted teeth are swollen and purple in color, and in marked cases, become spongy and readily bleed. Finally a rapid disappearance of all symptoms upon the institution of a proper antiscorbutic diet. This disease shows no preference for sex, is found at any season, in any climate or locality, amidst the best or worst hygienic surroundings, and in every class, though curiously enough wealth furnishes by far the larger number. Generally, the disease develops between the age of six months and the end of the second year, yet this limit is by no means a fixed one, and is closely confined to artificially fed infants, there being, according to Starr, but two recorded cases in nurslings. The cause of scurvy in infants is continued deprivation of fresh food. The faulty foods being:

1.—The different proprietary infant's foods administered without the addition of cow's milk. These foods are responsible for the greatest number of cases. Bovaird reports that out of sixty-four cases seen by himself, thirty-two were due to this cause, while only three were breast fed.

2.—Proprietary foods employed with the addition of insufficient quantities of cow's milk.

3.—Oatmeal or wheat-gruel, barley and other farinaceous foods administered with water alone or with water and insufficient cow's milk.

4.—Sterilized milk; properly modified milk mixtures subjected to a temperature of 212° F. from thirty minutes to an hour or more.

5.—Condensed milk and water.

In this connection the report of the milk commission appointed by the Medical Society of the County of New York is interesting. This work was accomplished in the heat of oppressive summers at much personal inconvenience, and at times in the face of more or less opposition, and certain data have been obtained which may be taken as conclusive evidence; thirty visits were made to farms and dairies, some as far as one hundred and eighty miles from New York City. Each of these visits consumed at least one day, and some several days, in order to afford thorough investigation of the premises and methods of working; the individual farm or dairy and not the milk company being regarded as the unit for study and investigation; they decided that an elaborate and extensive plant is not necessary to produce a clean milk. The contamination of milk is most marked during the first forty-five minutes, and here is where the largest amount of precaution must be observed. This includes cleanliness in every sense of that overworked word. The udder and adjoining parts must be thoroughly cleansed; the hands and dress of the milker should be sterile, as far as possible; the cans, pails, and strainer must be scrupulously clean; dust and insects from dirty lofts and ceilings must be avoided by the careful use of the brush and whitewash; and immediate packing of the milk thus drawn in ice.

The Commission suggested as follows: 1. Strict cleanliness, which refers to the barn, yards, cows, milkers, and all the utensils. Bacteria which get into the milk by means of dirt are thoroughly excluded. 2. Rapid and sufficient cooling of the milk to prevent the

development of the germs that happen to get in. 3. Thorough icing around the milk until it reaches the consumer in order to arrest the production of toxins.

The kidneys are frequently involved in infantile scurvy, owing to the presence of an irritant in the blood, which, acting upon the walls of the renal vessels, produces hemorrhages. But the scorbutic condition is produced after weeks or months of improper feeding; there are slowly increasing evidences of impaired nutrition before the characteristic symptoms appear. At first the mother or nurse notices that the infant is content only when perfectly quiescent; that he screams when lifted, and he ceases to creep or walk, if he has been doing these things. This crying is produced most readily by leg movements, and that either one or both limbs are held fixed, the thigh being drawn up towards the abdomen, the leg flexed, and the foot droops. Soon swelling appears above the knee or ankle joints, and the immobility and tenderness increases; so that the patient stops crying only while lying undisturbed on a pillow. If there are teeth the gums become purple in color; from a narrow line of discoloration, it rapidly extends; the gum swells, grows spongy, and bleeds at the touch. The disease naturally runs a chronic course, the symptoms slowly and steadily increasing in gravity, until the emaciation becomes extreme, with petechial spots on the surface, the swollen gums overlapping the teeth, a constant oozing of blood. Now the immobility, hyperesthesia and swelling affect the arms as well, epiphyseal separation may even take place, and the child, irritable and prostrated, lies passive upon the bed, dreading the slightest attempt at movement. We must note that hyperesthesia is almost invariably the initial symptom; the infant crying when the affected member is moved in changing the napkin or in arranging the stockings or dress. Should the child be old enough to creep, stand or walk, it suddenly becomes inactive, and cries when induced to attempt to use its legs. This tenderness increases steadily, and, if primarily seated only in one limb, extends to its fellow, and, in severe, long-standing cases, to one or both arms. The patient seems to suffer agony during the trifling movements necessary in making its toilet, and finally screams on the approach of its attendants. The characteristic feature of the pain is its production solely by movements of the parts involved, and firm pressure upon or friction of the surface is readily borne if the child is carefully handled. As Starr points out the decubitus is typical; the infant lies on its side with the trunk thrown a little forward, the thigh drawn half way up to the abdomen, the leg semi-flexed, and the foot drooped; when long maintained, this posture produces slight edema of the dorsum of the foot; this is not sufficient to show pitting on pressure. In cases where the upper extremities are affected the forearm is semi-flexed and rests on the trunk; the child maintains this posture for hours with no attempt at movement and no complaint while undisturbed. The immobility is not paralytic in character, and if the limbs be manipulated, the points are always found to be readily movable. Swelling of the soft tissues around the bones is common, varying in degree, though never very marked, and is quite distributed, spreading over the area of the bone affected; thus, when the femur is involved the tumefaction extends from the knee nearly to the hip-joint; when the tibia, from the ankle nearly to the knee; if the arm bones are affected, swelling is less noticeable. The swelling is always greatest over the distal ends of the bones; but as the

case progresses the tumefaction subsides, tends to become limited to the lower third of the bone, and beneath it, deep pressure reveals a firm fusiform enlargement of the shaft, due to sub-periosteal hemorrhage. The lesions of the gums are seen only in cases in which teeth have been cut; they appear early, but often escape attention until sufficiently far advanced for hemorrhage. At first the gum around the necks of the teeth becomes deep red in color and slightly swollen; the color changes to deep purple, the area of discoloration extends, the swelling increases, and ultimately the whole alveolar mucous membrane in the neighborhood of erupted teeth becomes ecchymotic, the swelling may be so extreme that the thickened gum margin overlaps the teeth, hemorrhage being produced by the lightest touch or may take place spontaneously. Fortunately it is rarely that sloughing occurs, and occasionally when the gum lesions are very marked, the teeth are temporarily loosened in their sockets; they should be maintained in position if possible, however, for they become firmly set again on recovery. One characteristic in infantile scurvy is that the general features are very diverse in degree of prominence, so that when the scurvy is mild the infant is seemingly well nourished and in apparent health, when suddenly a development of local symptoms occurs. In typical cases there is emaciation; dry, pale, or sallow skin; debility indicated by an irritable, weak pulse and with loss of muscle tone; the tongue is lightly coated, the appetite capricious, and the bowels constipated, the evacuations being rather scanty and clay colored, exhibiting deficient biliary secretion. In exceptional cases there is diarrhea, with greenish mucoid discharges, and the feces may contain blood. Gastric indigestion is apt to exist and very frequently there is an antecedent history of great difficulty in feeding on account of gastrointestinal disturbances. Fever is not an ordinary symptom, and when present is due to accidental complications, as intercurrent acute intestinal catarrh. Even in fever the temperature is generally but moderately elevated, the thermometer ranging rarely above 101° F. The urine diminished in quantity, high colored, is often laden with urates and increased in gravity. Nephritis is not common. Hemorrhage is a late feature, appearing after prostration is advanced and the blood crisis had deteriorated; taking place first in the sub-cutaneous areolar tissue, especially in dependent parts of the body, and beneath the buccal mucous membrane. The ecchymotic spots are deep purple in color, and range in size from that of a pin's head to patches one-fourth of an inch or more in diameter. Later, epistaxis and hematuria may occur, and, much more frequently, hemorrhage from the bowels. The loss of blood increases the cachectic condition noted in severe cases, and if at all profuse plays an important part in exhausting the vitality in severe cases. Fracture of the femur, or humerus, is a late symptom, in the extremely grave type of affection. In a practical point of view the pain produced by movement and the immobility of the limbs may cause an error in diagnosis, scurvy being frequently mistaken for rheumatism, hip-joint disease, paralysis and affections of the spine.

Zupfinger has studied infantile scurvy for a long time and believes the so-called factors usually given in the etiology, such as disturbances of nutrition, badly arranged dwellings, overcrowding, damp and cold seasons of the year, etc., are merely predisposing causes. He attributes the cause to some infectious agent as is the case in certain related hemorrhagic diseases. He

has produced as yet no certain data on which to base this statement beyond citing a few clinical histories.

The question of the relation of scurvy and rickets has been much discussed, and before the former disease had been studied rickets was supposed to precede or accompany it, and prior to the publication of the observations of Cheadle and Barlow, it was called "acute rickets." By some writers it is called Barlow's disease. Both diseases develop in infancy, and both are produced by food deficient in certain essential qualities, but here the similarity stops, for the rachitiform lesions are found in the bone tissue, while those of scurvy are in the blood vessels, and while the effects of these are readily and completely removable in scurvy, in rickets their mark is left permanently in bone thickening. Again alterations in diet quickly terminate scurvy but are inoperative in rickets. We cannot regard the two conditions as closely related; one may appear without the other, or they may co-exist in the same patient, though such an association is exceptional. According to Starr the most uniformly present and characteristic, in the cases in which there is the greatest likelihood of confusion, are profuse perspiration about the head and chest, anemia and evidences of malnutrition, delayed dentition, enlargement of the joints, bending of the long bones, cranio-tables, misshapen head with prominence of frontal and parietal bones, rachitic rosary, deformity of thorax with depressed ribs, projecting, distorted sternum, and protruding abdomen.

In the management of scurvy our success depends entirely upon the substitution quickly and effectually of a fresh, antiscorbutic diet. Employ a food composed of cow's milk, cream, water, and milk-sugar, properly proportioned to the age of the infant, and given, so far as the cream and milk are concerned, in the natural, fresh state, not being passed through the separator and not sterilized. Starr says that pasteurization and predigestion at a temperature of 115° F., are admissible in certain cases, but should never be employed when the cream and milk are carefully handled at the dairy and can be kept clean and sweet, and where the infant's digestion is moderately active. In addition the juice of fresh ripe fruit—oranges especially—is useful, and when, as is usually the case, it can be taken without producing diarrhea, is an efficient aid. For scurvy in an infant of eight months, an appropriate food schedule is:

First meal, 7 A. M. (Starr.)

Cream ½ ounce.

Milk 4½ ounces.

Milk Sugar 1 drachm.

Water 3 ounces.

At 9 A. M.—One to two teaspoonfuls of fresh orange juice, according to effect on bowels.

Second meal, 10 : 30 A. M. Same as first.

At 11 : 30 A. M.—Two teaspoonfuls of raw-beef juice, free from fat, and with a little salt.

At 1 P. M.—One to two teaspoonfuls of fresh orange juice.

Third meal, 2 P. M. Same as first.

At 3 P. M.—Two teaspoonfuls of raw-beef juice with salt.

At 5 P. M.—One to two teaspoonfuls of fresh orange juice.

Fourth meal, 6 P. M. Same as first.

At 8 P. M.—Two teaspoonfuls of raw-beef juice with salt.

Fifth meal, 10 P. M. Same as first.

Should orange juice disagree, good substitutes are

two to four tablespoonfuls of scraped ripe raw apple, two teaspoonfuls of fresh grape juice, or six solid grapes with the skin and seeds removed.

As the disease is due to diet, very little further treatment is necessary except to meet special symptoms. Gentle inunction of the limbs, with warm olive oil, may comfort the patient, and some acceptable preparation of iron, as the ferrated elixir of cinchona, will assist in restoring the general strength and toning of the blood.

Universal Celestial Radio-Activity.—This subject was discussed recently by Prof. Monroe B. Snyder, Director of the Philadelphia Observatory, before the American Philosophical Society. He has discovered radium in the solar photosphere, and radium emanations in the solar corona and in the auroral streamers of the earth. He also found that radium and its emanation, the latter identical with coronium, were widely and correlatively distributed in stars, nebulae, and very probably comets. Radio-activity is a transformation of one element of higher atomic weight into another of lower atomic weight, with the release of light vibrations of characteristic intensities and wave lengths. Ramsay, Rutherford and Soddy had demonstrated the reality of such terrestrial transformation and had established, on physical and chemical evidence, that radium was actually transformed into "radium emanation" and thence further into helium. Doon discovered the emanation of radium, as sharply distinguished from the three classes of rays emitted by this "element." Ramsay had accomplished the exceedingly difficult task of observing the spectrum of this radium emanation; and this was the starting point of Snyder's investigation. It seemed to the latter that Ramsay had apparently exhausted the list of discoverable gases and that this element of radium emanation would have interesting relations to stellar spectra. (The trend of chemical science to-day seems to be to find all "elements" to be but varieties of one fundamental element, one primal form of matter. Sir Oliver Lodge sets this forth). With the help of the researches published by Hartmann, of the Astro-physical observatory at Potsdam, Snyder identified radium emanation with fine coronal lines, and particularly with the coronal material discovered by Young and Harkness during the total solar eclipse of 1869, and thence called coronium; he identified five of the lines of the radium emanation with Vogel's best determined lines of the aurora; he also made identification with the bright lines of Campbell's stars, in the spectra of the nebula; and, finally, at least a dozen positive identifications of radium lines with the dark absorption lines of the fourth type stars, as observed by Hale of the Yerkes Observ.

Are Crystals Alive?—This theory, ascribing a kind of life, of a lower grade than that of plants, but still real life, is advanced by Messrs. F. Di Brazza and P. Pirenne, of Belgium, from studies of the phenomena of crystallization observed under the microscope. They say: If we dissolve a salt in water until the liquid is saturated, and then modify the conditions by lowering the temperature, we shall see crystals of the dissolved salt appear.

At the beginning of the crystallization a tiny globule is seen to be differentiated from the uniform mass, being easily recognizable on account of its difference in refractive power. Studied closely, this globule shows within it a slight "petroplasmic network," which shows an analogy with the formation of animal and vegetable cells.

Then are seen appearing in the network small obscure

points called "petroblasts," which, when observed under high magnifying power, seem to be at the centre of a dark substance called "deuterolithoplasm," and on the periphery of another clearer substance named by Von Schron "protolithoplasm." The formation of the crystal results from these two substances. . . . Crystals have different origins, but . . . the petroplasmic kind is by far the most common. In the strife between the two substances constituting the petroblast, the globule changes form by an annular enlargement; the ring then is deformed and an angle is formed which Von Schron calls the primitive dominant angle, because it gives the direction of the future crystal. Soon a second angle forms opposite the first, called the "diagonal angle." Finally, the meeting points of these two opposed angles form new angles called "secondary."

The crystal, whose formative phases we have thus studied, can move about, and also presents the curious peculiarity of being able to reproduce itself in three ways—by division, gemmation, and endogeny.

Life in crystals can be explained by the struggle for existence, which is ardent even here. In fact, if during their growth two crystals come into contact, the weaker will completely disappear, absorbed by the stronger. . . . The crystal seems actually to be a living being, and as we have said, it should have its special pathology. This is really the case, according to Von Schron, who has discovered fifteen kinds of disease in crystals, some of which are hereditary—cases of bifurcation, torsion and erosion, which are confirmatory of the new theory. When its vital cycle has been complete the crystal becomes old and fossilized. It is then inert.

Euphagia, Tachyphagia, Bradyphagia.—Einhorn (*Med. Rec.*, Jan. 7, '05) discusses most ably these three conditions. The first, the partaking of food, if done in a correct manner, like all natural processes, affords the body, both pleasure and satisfaction; to this end, however, there must be previous work and subsequent rest. Meals are best taken during psychic and bodily quiescence. The food must be thoroughly chewed. Water should accompany the meal.

Tachyphagia, or hasty eating, is a common evil. The food enters the stomach without being properly insalivated and comminuted; thus the foundation for many a stomach or bowel ailment is laid. The gastric mucous membrane is thus irritated, and the food is not sufficiently acted upon by the gastric juice. The chyme then reaches the bowel practically unchanged, renewing here the irritation. Besides these baneful factors there are: the taking of large quantities in too short a time; the consumption of foods too hot or too cold.

Bradyphagia, or eating too slowly, may affect the body economy injuriously. In such cases, patients masticate and re-masticate; oftentimes an abnormal fear of eating is aroused as in neurasthenia, frequently a smaller quantity of food is taken than usual. Sometimes, the bolus remains fixed in the pharynx and the esophagus. Thus may chronic inanition result; death has occasionally resulted from this cause.

All persons, who eat too fast should be warned; if the time for eating is too short, as in railway journeys, the full meal had best be omitted and some fluid as milk or beef tea be taken instead. The physician should instruct those who eat slowly to eat and drink large quantities. They should eat with others who have normal appetites and finish at the same time with them. Bromides or valerian may be required to allay psychic disturbances about the meal time.

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The difference between talents and character is adroitness to keep the old and trodden round, and power and courage to make a new road to new and better goals.
—EMERSON.

NEW PROBLEMS IN THE TREATMENT OF MALARIA.

THE recent truths developed in the production of malaria have forced many new problems for the medical man and health officer to work out. We now know that protection by mosquito destruction consists in the draining of swamps, the filling up of stagnant pools, the closing of tanks near houses, the clearing of undergrowth and close vegetation together with the liberal use of kerosene oil on these various breeding places. Unfortunately, however, experience shows that this plan while scientifically sound is very difficult of application in actual practice, for the drainage of the waste parts of the earth is a vast problem.

We now know that the mosquito cannot fly far and cannot retain its power of propagating malaria unless it finds shelter within one hundred and fifty yards of a habitation; hence the destruction of breeding places within the area in which any dwelling stands to this extent should free the place from malaria, but as all malarial-bearing mosquitoes do not bite only at night and as during the day the inhabitant must be abroad, beyond the "healthy area" he becomes infected in this manner.

As a protection against mosquitoes the use of fine gauze around the bed has been recommended but gauze is apt to tear, to get foul and smell "earthy," and unless its meshes are very fine mosquitoes will get through it; wire netting has come into use lately, and possesses many advantages, but the disadvantage of any kind of netting around the bed is that the air within it grows very close and stagnant, rendering sleep impossible in very hot weather. Moreover mosquitoes bite in the early evening, and by biting the ankles through the stockings, the head or the hands, can inoculate the hu-

man being, so a mosquito-protected house is theoretically the ideal form of warding off mosquitoes.

Again the local distribution of some of the anopheles species is peculiar, showing some important differences in the propagation of malaria, for although several varieties of anopheles may be present in a locality, it by no means follows that all or the majority convey malaria to man; in fact, only a few are capable of transmitting malaria. Mosquitoes, although incapable of existing in numbers away from plentiful vegetation, may be carried from a place where they prevail in numbers to districts where they are unknown, in the clothing, baggage, etc., of passengers, and in goods sent by railway; they were transported from Rome to London and still possessed their power of infecting. Manson and Warren, of the London School of Tropical Medicine were infected by malaria-infected mosquitoes from Italy. But the theory that malaria is carried long distances by prevailing winds is probably incorrect, as mosquitoes in strong winds seek shelter. Malaria can appear as a new disease in a place, or in the form of a recrudescence outbreak, as illustrated in the case of the island of Mauritius, and in the town of Middleburg in Zealand, Holland. In Mauritius, malaria was unknown until about the year 1876, when it broke out in a very severe form; while in Zealand, according to Van der Scheer and Van Berlekon, malaria reappeared there after a lapse of thirty years. That mosquitoes infect human beings with malaria as far north as Holland, enlarges our views as to the conditions of temperature, etc., under which malaria and malarial-infecting mosquitoes can maintain their power.

Malarial parasites in the blood without fever have been frequently noted in the case of children in tropical climates; this is explained by some observers as being due to an immunity transmitted from the parent to the offspring; a theory which is wholly unproven as yet, for experiments go to show that natives do not suffer less than Europeans from mosquito bites. The irritation caused by the bites is less in the case of the native, but mosquitoes are attracted, at least in Sierra Leone, more by the native than by the Caucasian; as was shown by noticing that in a tent in which a European slept only a few anopheles were caught, whereas in the same tent anopheles swarmed when natives slept in it. After the departure of the natives anopheles again diminished in numbers. It would appear, rather that the immunity of the adult natives is due to the fact that in childhood they all suffered continuously from the disease.

As to new remedies in malaria, the bihydrobromate of quinine, which dissolves readily in 6 parts of warm water, has been administered, in malaria, hypodermically; injected in 3-grain doses subcutaneously, dissolved in 20 minims warm water; six injections, on alternate days, sufficed to cure. This drug should be tried in regions where the malaria is severe. White usually

injects 5 grains of the bisulphate of quinine repeated every three days, selecting the subcutaneous tissues at the angle of the scapula, for two or three injections which generally suffice, while Powell employs the hydrochloro-sulphate of quinine in 18 or even 36 grains at one injection; one part of the salt being dissolved in 3 or 4 parts of a 1 in 5,000 solution of perchloride of in 3 or 4 parts of a 1 in 5,000 solution of perchloride of mercury. Dowler uses (1) the ordinary sulphate of quinine dissolved in tartaric acid; (2) the neutral sulphate of quinine; but he prefers (3) the bihydrochloride of quinine, as being more nearly painless.

Gray uses intravenous injection of $\frac{1}{4}$ to $\frac{1}{2}$ of 1 per cent. of quinine in deci-normal salt solution; he prefers 30 grains of bimuriate of quinine and iron in a pint of deci-normal salt solution, injected into a vein or into the subcutaneous tissues, and if done slowly and with antiseptic precautions he states that it is not a serious operation.

Benakz prefers the use of large doses of arseniate of quinine—18 grains daily in the form of cachets or pills, in the treatment of malarial diseases, for he regards the arsenic present in the salt as a negligible quantity, and innocuous as far as its therapeutic specificity is concerned. Arseniate of quinine acts both as a febrifuge and as an antiperiodic; no deleterious sequelae accompanied its administration; and it has produced in Benakz's practice excellent results in the various forms of malarial diseases. Methylene blue Iwanoff and Wood, Jr., find, acts chiefly on the protoplasm of the tertian parasite whereas quinine affects the pigment. By administering 5 grains thrice daily these authorities found that in the tertian parasite the changes began at the end of the second day, and affected only the full-grown forms of the parasite, whereas the younger forms remained unchanged. Quinine acts in quite the reverse way, for it is the younger forms that are chiefly attacked by the drug, and the adult forms scarcely at all, so this drug is indicated in cases where quinine fails.

Diphtheria and scarlatina. though of different etiology, may at any time combine, considers Uffenheimer (*Ref. d. Kinderarst.*, vol. xv. H. 10, '04). The condition of a diphtheria patient is greatly aggravated by the advent of scarlatina infection; on the other hand diphtheria does not necessarily endanger a scarlet-fever case. This complication is ushered in by a rapid and pronounced rise of temperature. The scarlatina infection occurs after a brief incubation period. True diphtheritic affections of the throat in scarlatina very frequently fail to present the usual pseudo-membranous deposit. Diphtheria antitoxin should be employed in all scarlatina cases which present the clinical aspect of diphtheria or croup, irrespective of the appearance of the deposit. Children who can gargle require no serum injections, considers Uffenheimer; we do not agree with him here. We would inject in all such cases, taking no chances.

THE CONTROL OF DEAF SCHOLARS BY THE STATE.

AS a community grows more civilized, the state interferes more and more with the freedom of the individual. In a savage condition, a man can commit murder and not be punished for it, if he has the physical strength and courage to resist any attempts at vengeance. As that community grows more civilized, the individual's actions are restricted and his liberty curtailed. Viewed from this standpoint, Germany may be said to be the most highly civilized country in the world. Mark Twain, in an essay some years ago, brought out in a humorous way the extraordinary restrictions imposed upon the dweller in a German village.

Unless the restrictions are petty or unwise, they may be considered as advances, especially when they relate to medical legislation. A happy illustration is afforded by the action of the state of Michigan, some years ago, in reference to the instruction of the deaf. In 1899, the late Governor Pingree started a movement for the instruction of the deaf by the oral method through the medium of the day-school. The Michigan law, after a trial, has proved to be very satisfactory; it is easy of construction and application, devoid of intricate machinery for the establishment of schools and easily harmonizes with the school laws of the state. A synopsis of it is as follows:

The local school board, generally acting upon the petition of the parents of deaf children, makes application to the superintendent of public instruction for permission to establish and maintain a school for the deaf. It is mandatory upon the superintendent of public instruction to grant permission where there is an average attendance of not less than three children over the age of three years, whose parents or guardians reside within the state. The local board, after the establishment of the school, is required to report its condition, and such other facts as may be required, to the state superintendent. The state treasurer is directed to pay the local board, out of the general funds of the state, the sum of \$150 for each deaf pupil instructed in the school for nine months during the school year, and a part of such sum apportioned to the actual attendance of such pupil. The funds received from the state must be kept separate from the other funds of the local board, and can be expended only for the payment of salaries of teachers and for school appliances, all other sums unexpended being returned to the state treasurer. All teachers in such schools are appointed and employed as all other teachers in the public schools are appointed and employed. All applicants for positions must be qualified by having special training for teaching and also special training in the teaching of the deaf, including at least one year's experience as a teacher in a school for the deaf. The oral system shall be used exclusively, but if, after nine months' trial, any child shall be unable to learn by the

oral method, no further expense shall be incurred in the attempt to educate it. Any person of sound mind who, by reason of defective hearing, cannot profitably be educated in the public school as other children are taught, shall be considered eligible to enter any of these schools.

There was a time when the deaf were confined in the same institution with the insane; next came the periods when the child was separated from the family and educated at state institutions. But there is no reason why the deaf child should not only have right to an education, but the right to remain a member of the family, enjoying its comforts and experiencing its sorrows.

There should be only two classes to attend state institutions for the deaf; first, those who cannot be supported at home, and second, those who desire a higher education than can be obtained at local high schools.

There are a number of wise provisions in the Michigan State law; first, it is general in its terms, leaving the details to be worked out by the different authorities. To avoid conflict the advisability of the establishment of these schools is left to the local schoolboard; also the methods of instruction are uniform, and the expense to the state is fixed at a definite sum to each pupil. As a result of this work, the beneficiaries of this education, which include the friends and families of the pupils, will ever hold Pingree in grateful remembrance for his successful effort to restore the deaf in Michigan to the society of the hearing and to better citizenship. The time is ripe for the extension of this admirable law to other states. This is part of the broader question of the relation of the state to the defective child. The first proposition laid down by our educators is that it is the primary duty of the state to pass such legislation that defective children shall not be grouped in classes designed for the normal child. But the attitude of the state must not be negative and the state must recognize that these children are subnormal rather than abnormal. They are not necessarily degenerate or diseased and must be liberally provided with the specific training necessary to make them useful members of society.

Edebohl's operation for chronic nephritis is considered by Dr. A. D. Atkinson, of Baltimore, to be applicable in only a very limited number of cases of medical nephritis. It appears to the latter that in chronic intestinal nephritis or in late or contracted forms of parenchymatous and diffuse nephritis, the results do not warrant operation; that Edebohl's theory on revascularization of kidney substance by decapsulation has not been proved; that best results have been obtained in movable kidney with albumin and casts. Dr. Atkinson believes that benefit and actual cures have been obtained in acute and early stages of chronic parenchymatous nephritis, where pain is present and suppression of urine threatens the patient's life.

THE ADMINISTRATIVE CONTROL OF TUBERCULOSIS.

A COMPREHENSIVE and important paper upon this subject was read by Dr. Hermann M. Biggs before the New York County Medical Association on March 20, 1905. Many a reader may recall how some twelve years ago, when but one of the measures set forth in his paper—the notification and registration of cases of consumption—was proposed for adoption, the attitude of the medical profession in this community was practically unanimous in condemnation. Among other influential bodies the New York Academy of Medicine set forth resolutions of such tenor. To-day the attitude of the profession is quite reversed and is in general terms in cordial sympathy and co-operation with the Health Department of this city regarding this measure.

Indeed, the work of Dr. Biggs in the field of preventive medicine has become not only of municipal, nor even of national, but of world-wide appreciation, as having manifestly resulted in the saving of many lives and the alleviation of much sickness and suffering. The administrative measures, which have been put forth by the New York City Health Department, during his Medical Directorship of some fifteen years past, are now gratefully adopted—so far as practicable—in many American civic communities; and they are matters of earnest consideration in European cities. We set forth here the main features of Dr. Biggs' plan for the control of tuberculosis by municipalities.

1. The compulsory notification and registration of all cases. It is pointed out that tuberculosis is not a contagious disease in the sense that diphtheria or scarlet fever is. The course of the former is chronic and the means of prevention are well defined, sure and easy of application. No Health Board inspector visits the reported case except by permission of the visiting physician. Nor, while there is a physician in attendance, will the Department take any cognizance of the matter. And the information furnished by the physician is held to be confidential. If there is no physician, as in the slums, the Department takes charge.

2. The sanitary authorities should afford facilities for sputum examinations, free of charge; in sending the specimen the physician must give the name and address of the patient.

3. The public should be instructed concerning the nature of the disease by means of printed circulars and of the public press.

Lay societies, leagues and associations should be enlisted in the work; and lectures upon the subject should be given.

4. Poor consumptives should be visited in their homes by physicians engaged by the Health Board, or trained nurses, who would instruct the families and patients with regard to necessary precautions and should at the same time gather such information as is possible

concerning the number of persons in the family, the dwelling, the possible source of infection, the amount of air-space, occupation and other circumstances which might influence the origin and progress of the disease.

5. Rooms or apartments which have been vacated by consumptives either by death or removal should be disinfected or renovated by the health authorities or the owner of the house.

6. Visits should be repeatedly made by trained nurses to cases in tenements when the patient cannot be removed to an institution.

7. Suitable food—milk, eggs, etc.—should be supplied to destitute families by the authorities or by charitable societies, which undertake supervision in such affairs.

8. Three sorts of institutions should be provided by the authorities for the consumptive poor: free dispensaries; hospitals for the care of advanced cases; and sanatoria in country districts for insipient cases among the city's poor.

9. The authorities should issue regulations concerning consumptives for the guidance of public institutions.

10. Prohibitions concerning spitting in conveyances and in public places should be framed; and vigorously enforced.

Are these measures feasible? Dr. Biggs declares that for a number of years they have been in force in this city—the second largest in the world—and experience has conclusively demonstrated their practicability. There are now no serious difficulties in carrying on this work. Experience has shown that the obstacles met were largely imaginary; that the harmful results that were predicted as certain to follow have not materialized. From the enforcement of these measures there has come a more rapid fall in the tuberculosis death-rate of this city than in any other great city of the world; and this despite the fact that the conditions here are in many respects much more unfavorable. During the last ten years there has been a decrease of 40 per cent. in children under fifteen from pulmonary tuberculosis and tuberculous meningitis; and a decrease of exactly the same per cent. in the total consumption death-rate between 1887 and 1902.

In New York City, whenever a destitute consumptive lives in dreadful poverty amid unhygienic surroundings, the infectivity of which is increased by his presence, he is removed, if necessary against his will, to the city's excellent hospital for consumptives on North Brothers' Island. There are some who may question the legality of this measure, as being destructive of the liberty of the individual. We consider, however, the Health Board's position here is sound. It is a matter of easy demonstration that the advanced and uncared-for consumptive is a menace to the health of his neighbors. With regard to smallpox—an analogous condition in

relation to possible effects upon the community—the Federal Supreme Court has decided that one must be vaccinated, willy-nilly, by properly constituted authorities. The observation of Hobbes is cogent in this regard: "It is the province of the legislature to procure the safety of the community, even if it interferes with the freedom of individual action."

OUR ARMY MEDICAL DEPARTMENT.

ANY American who reads Dr. Louis L. Seaman's admirable book *From Tokio through Manchuria with the Japanese*,* must sigh with envy when it is made manifest to him how far removed is our own army medical department from the ideal state in which Dr. Seaman has found that of the Japanese. The petition of the American Medical Association, as expressed in its *Journal*, the personal solicitation of the Secretary of War and the formal declaration of the President himself of these United States are all to the effect that "if the Medical Department of the army is left as it is no amount of wisdom or efficiency in its administration will prevent a complete breakdown in the event of a serious war." A bill was introduced at the last session of Congress to increase the efficiency of this branch of the public service; but the Speaker of the House at the last moment refused to permit the measure to come to a vote, although the majority of that body were ready to vote for it. The measure had already passed the Senate, and President Roosevelt was heartily in its favor.

It is too often the unexpected that happens; should war come, such disastrous conditions as attended our Spanish War "must be repeated if we are not in a mood to learn from this very recent experience. The report of the board appointed to investigate the sanitary conditions of the United States Army, during that brief conflict, showed that nine-tenths of the volunteer regiments developed typhoid fever within eight weeks after going into camp. There were 20,730 cases of this single disease, with a death-rate of 7.61 per cent., and this mortality takes no account of the loss from all other diseases."

Strict discipline and efficient military organization obviates epidemics of any kind. As in the Japanese army the death-rate from disease would be reduced to a minimum and the efficiency of the fighting line would be practically intact except for injuries received in battle. In this Oriental army the medical staff is, as it should be, in touch with the commanders of the various armies in camp and in the field and is thoroughly equipped. In all things pertaining to sanitation the surgeon's word is supreme. As examples in our own country of what wonders may be accomplished by our own army medi-

* Appleton, Publisher.

cal staff when its arms are not deliberately tied, the familiar work done by Major and Surgeon Walter Reed and Major and Surgeon W. C. Gorgas is in evidence.

MODEL TENEMENTS.

AS a work of wholesome humanitarianism a recent benefaction of Mr. Henry Phipps, and the method of its use, must certainly excite the warmest admiration of all reasonable and good men. He has made a gift of one million dollars for the building of improved tenements in New York City. An organization of excellent citizens has been found to manage this matter; and the chairman of their executive committee is Mr. Robert W. de Forest, the first Tenement House Commissioner of New York City. Another important member is Dr. E. R. L. Gould, the president of the City and Suburban Homes Company, which builds model tenements.

Mr. Phipps proposes to organize a society for the purpose of building tenement houses in New York City, preferably in Manhattan Borough. The tenements, for the building of which his gift is made, are expected to earn about four per cent. on their cost, after allowing a proper amount for maintenance and repairs. These earnings are intended to accumulate and to be used from time to time in erecting more tenements. *The rooms should not be rented at a price below the market price*, for it is not desired to discourage individual investors from building tenements on a purely business basis. For building operations might thus be checked, rents raised and injury be worked in the end to the working people. In periods of high cost and great inflation the work should go very slowly or be stopped; when there is great depression and lack of employment the work of building should be active. One building should, to begin with, be finished and rented, so that its efficacy may be judged and so that the buildings which follow may be in accord with the initial experiment. There should be all the light and air possible in these buildings; they should be fireproof and thoroughly sanitary, with as much air space as may be around them in which the children can play. Undoubtedly this beneficent plan will help to furnish a standing below which no landlord, no matter how calloused, will find it profitable to build and conduct his property.

A plot has already been secured for the first building. In general terms there will be light in every room, proper sanitation and ventilation, steam heat, a gas range and a toilet to every apartment. There will be good material in construction; and here again the unscrupulous builder will find that it will not pay him to erect houses of the Buddensieck type, a number of which have lately collapsed in the building in this city.

Mr. Phipps' first tenement will be given up to two, three and four-room apartments. There will be a bath-

room only in the four-room apartments. For the others there will be tub and shower bath in the basement, one for every six families. Two other plots will soon be purchased. The expected income from these three is \$40,000 a year. In three years this accumulated income will buy another building. "The accumulative power of money used in this way," states Dr. Gould, "was strikingly shown by the Franklin fund." The great Benjamin more than a century ago left \$5,000 to accumulate for the benefit of ambitious artificers and craftsmen. The principal now amounts to \$411,000. It has been calculated that at four per cent., Mr. Phipps' fund would in a little more than a century hence, amount to \$64,000,000.

In the City of Washington model tenements are being built and conducted by the Washington Sanitary Housing Company. Here again the word philanthropy rings true. This company's work is based upon principles of relief of harmful conditions. However, we are glad to note that "Charity is here controlled by business principles, the only sound method of its ministration." (*Am. Med.*, Jan. 14, '05.) Two-story houses are built, containing three or four-room flats, with bath room and sanitary plumbing, on sites formerly occupied by unwholesome "shacks." These flats are rented to those who cannot pay the \$10 or \$16 rent of other available houses. The rents are \$7 or \$8 a month. Proper care of the houses is assured by setting aside one month's rent each year for interior repairs. The difference between the cost of necessary repairs and this rent is given to the tenant as a rebate, hence the incentive for making the repair bill as small as possible. "The financial possibilities of the enterprise are shown by the payment of the 4% dividend annually and, in addition, the accumulation of a handsome surplus. The company has borrowed money to complete a row of houses and seeks to sell additional shares to liquidate its indebtedness and still further extend its operations. No trouble should be had in selling to the citizens of Washington hundreds of shares. Subscriptions mean philanthropy, improvement of the city and financial return." The officers and directors of the company are eminent men, whose names are ample guarantees. "Such examples herald the time when charity will cease to cover a multitude of sins in the way of further degradation of the people it would aid."

It may be that the discerning man of means will see in the matter of housing improvement here set forth some reasons for investment in accordance with sound business principles in such manner that he may well earn a proper and a righteous profit, and be at the same time well entitled to the good opinion of his fellowmen. Here he would be engaging in "philanthropy with four per cent.," an altogether just and wholesome sentiment. And perhaps the genus landlord needs some moral leavening to which he would no doubt contribute.

It is evident that the construction of decent, healthful homes is perhaps the most grateful occupation in which any man can engage.

Possible investors should not fail to read the N. Y. *Evening Post's* editorial, January 14, 1905.

CEREBRO-SPINAL MENINGITIS.

THIS disease has again manifested itself in epidemic form in many cities during the months of March and April just passed.

In New York City the Health Department has instituted a systematic and very thorough investigation of the cause, and the finding of some means by which the high mortality might be lowered. It is curious to note that, despite the great progress in medicine in the past fifty years, there has been produced little of practical or remedial value concerning this disease. The germ in many cases undoubtedly finds lodgment in the meninges *via* the nasal passages. Epidemics have apparently no regular periods of recurrence nor do they seem to arise from any well-defined set of conditions. No doubt filthy streets are a pathogenic agency. Most cases are in children up to five years of age; and the vast majority are among the poorer classes. Epidemics are confined to no one street or locality in this city. The Health Commissioner, Dr. Darlington, has appointed a commission of eminent physicians to investigate the nature of cerebro-spinal meningitis. Drs. Northrup, James and Draper have taken charge of the clinical phases of the matter; and Drs. Flexner, Van Cott and Dunham of the bacteriological aspects. It was decided to issue cards to doctors in hospitals, with blanks to be filled in with desired data. A list of questions to be asked on these cards was arranged for. Bacteriological evidence was desired as to evidences of communicability, knowledge of the specific germ, especially with reference to differentiation, agglutination and pathogenesis. Clinically, it was inquired concerning the patients' surrounding and the conditions under which they were stricken with the disease. It is probable that the scope of this investigation will be world-wide, and that information will be sought from hospitals all over the globe.

Dr. A. J. Wolff, of the Hartford (Conn.) Board of Health, has experimented with a diphtheria antitoxin, injections of which, he declares, have been effective in this form of meningitis. We doubt greatly the efficacy of this method of treatment, believing it to be quite unscientific and at variance with the now-accepted explanations of the mode of working of curative serums. We believe that the antitoxin used by Dr. Wolff could be effective only on the assumption that the specific germ of cerebro-spinal meningitis and that of diphtheria are identical. We on the other hand fully agree with him that serum therapy is likely to

became effective in this disease; but not until the specific germ of "spotted fever" has become isolated, so that a serum may be evolved from it.

A very scientific observation has been made by Prof. A. E. Verrill of Yale, to the effect that this disease may be conveyed by the bites of fleas and other insects. Such a mode of conveyance is absolutely certain, as we know, in yellow fever and malaria. Prof. Verrill considers this the best explanation of the scattered and irregular distribution of the cases and the greater frequency of the disease in unsanitary localities in New Haven.

A curious error in diagnosis was made in Bellevue Hospital when on autopsy a case of supposed spotted fever was found to be one of miliary tuberculosis. The pathologist in this instance declared his opinion that fully 30 per cent. of cases of the former disease were wrongly diagnosed.

DR. OSLER'S DEAD LINE,

DR. OSLER'S dictum that men of sixty had best be chloroformed as being quite useless burdens upon society and that after forty men are comparatively negligible in the world, has by this time become a statement of purely historic interest. Nevertheless some observations concerning it are pertinent.

There is a story rather popular, and deservedly so, in America, which Dr. Osler is not likely to come upon after he takes up his residence in England. It is concerning one John Paul Jones, who fought his ship, the *Bon Homme Richard*, against the *Serapis* somewhat more than a century ago. The former ship was certainly getting the worst of the fight. She was so riddled that she must certainly have sunk had not John Paul conceived the brilliant idea of lashing her to the *Serapis*. While this was being done, the English commander hailed, "Have you struck?" "Struck!" answered John Paul. "Why, what the blankety blank—we haven't begun to fight." And the result was that the *Serapis* surrendered.

And this is certainly true of life generally—few men of calibre begin the fight of life much before the fortieth year. Before that time there is the establishing of a good, fruitful soil, the sowing of the seed and the growth; during this period potentialities are being developed. After forty is the harvest time. This is when men are producing the works they have been maturing. A year or two ago there appeared in *Harper's Weekly* a series of papers, entitled "Great Americans of To-morrow." These papers were descriptions of men who, it was expected, *were going* to make their mark, and to impress their personalities upon their time. *Not one* among these was under forty years of age. The youngest, we believe, was forty-three. The average was between forty-five and fifty.

But, upon consideration, how fatuous to set any ar-

bitrary age limit beyond which human beings are to be considered useless. Is the useful individual only that strenuous object who is constantly perspiring? Such a one does not, after all, accomplish much that is worth while.

It is not so much what work is done in the world as what influence is wrought, that is worthy of estimation. The infant binding together more closely the hearts of its parents; the school child sweetening the home; the adolescent boy and girl, opposing their beautiful, inexperienced idealism to the sordidness of life and its ghastly compromises; the husband maintaining his family; the wife rearing her offspring; the mature man (usually after forty) accomplishing the world's business; the venerable counselor; "the justified mother of men," who sits in her porch surrounded by her children and her children's children, while the rays of the setting sun touch warmly her whitened hair—who shall aver that any period of life, indeed, is without fruition.

One phase of this subject, however, continually surprises us. It is the tendency in religious denominations to disregard venerable clergymen, and to engage young "hustlers" in their stead. This is an amazing thing, that men should not be wanted who have reached the years when their ministrations should be most valuable. What does your callow dominie of thirty, or of forty, either, know about life, that a tired, perplexed soul should come to him for counsel or for comfort? It is only the old man, experienced in life, freed from the bondage of its passions, fitted by contemplation and meditation for spiritual advising, who is best fitted for the religious office.

By the way, since Dr. Osler made the statement above noted, he has been interviewed by a zealous newspaper man, to whom he declared that his chloroforming scheme of doing away with men of sixty was just a joke; perhaps he advanced his other idea in the same spirit.

An honorable enemy lets you know before he is going to strike. Of this sort is one who writes to the New York Times concerning the late decision of the Federal Court concerning the right of the properly constituted authorities to protect the communal health by vaccination against small-pox: "No, the decision of the seven old fogies of the United States Supreme Court in the Massachusetts vaccination case does not end the discussion of the fraud; neither does it end the life of the societies opposed to it. Firearms do not cost a fortune, and in case of necessity can be made good use of when occasion requires it to send to limbo, besides the vaccinating doctors, politicians and so forth, some of our ignorant and paid-for-it editors we possess, especially those of the abominable New York Times.

A suicide that failed was the result of a hypodermic injection by an Australian woman of a combination of atropine, strychnine and morphine. She wanted to make her death certain beyond peradventure. Instead, these drugs counteracted each other, with the result that she survived, a little the worse for wear.

BIBLIOGRAPHICAL

A Text-Book of the Practice of Medicine.—For Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital; Laureate of the Royal Academy of Medicine in Belgium and of the Medical Society of London. Author of *A Text-Book of Practical Therapeutics*; *A Text-Book of Practical Diagnosis*, etc. In one very handsome octavo volume of 1120 pages, with 129 engravings and 10 full-page plates in colors and monochrome. Cloth, \$5.00, net; leather, \$6.00 net; half morocco, \$6.50, net. Lea Brothers & Co., Philadelphia and New York, 1905.

This volume embodies the experience of more than twenty years of active hospital and private practice, during which time the author has been constantly teaching clinical medicine and therapeutics. Dr. Hare possesses to an unrivalled degree the ability to grasp the essence of a subject and to present it clearly. He also understands how to select just those points concerning which the practitioner is likely to seek for information. These characteristics are notable in his previous works, especially in the *Practical Diagnosis* and *Practical Therapeutics*. The author's long training has enabled him to appreciate and overcome the student's difficulties, and his equal experience in practice has qualified him with ripened judgment to solve the everyday perplexities of the physician. The sections on diagnosis and treatment have been developed with special fulness and detail, the therapeutical recommendations being given in such a way that they may be readily applied. Illustrations and plates have been introduced wherever an important point could be made clearer than by verbal description alone. This new work by an author so well equipped at every point is assured of a warm welcome as the leading *Practice of Medicine* for all classes of readers.

Chemical and Microscopical Diagnosis.—By Francis Carter Wood, M.D., Adjunct Professor of Clinical Pathology, College of Physicians and Surgeons, Columbia University, New York; Pathologist to St. Luke's Hospital, New York. With 188 illustrations in the text and 9 colored plates. D. Appleton & Company, New York and London, pp. 745, octavo, price \$5.00.

The up-to-date practitioner of the present day is distinguished from his predecessor of twenty years ago by the fact that he applies the results of modern researches on the blood, sputum, urine, and other secretions and excretions of the body to the solution of his problems of diagnosis. Just in as much as he uses these methods intelligently and carefully is he superior to other practitioners who employ only the older means of physical diagnosis.

The new text-book by Prof. Wood has been prepared with special attention to the needs of the practical clinician. It is the result of a good many years of teaching and laboratory work.

The physician who has a laboratory at his disposal will find a very full discussion of the Widal reaction, of the methods of making blood cultures, and of the results which may be obtained thereby, and of the modern methods of testing for blood by the precipitin reaction. These procedures are more fully given

than in any other English text-book.

The chapter on Urine is one of the largest in the book and contains much that is new and not to be found in other text-books of clinical diagnosis. The needs of the practitioner are consulted. An especial feature is the introduction of a number of pages giving the reaction of drugs when they appear in the urine.

Recent progress in infant feeding was largely developed by the study and analysis of the relation of human and cow milk. The methods of analysis of both fluids are fully given.

An appendix has been added containing full directions for the making of staining fluids, the care and purchase of apparatus, the necessary agents, the preparation of normal solutions, the clearing of slides and cover glasses and the removing of dyes from the hands, thus completing a very practical book.

A Reference Handbook for Nurses.—By Amanda K. Beck, of Chicago. 32mo volume of 150 pages. Philadelphia and London. W. B. Saunders & Company, 1905. Bound in flexible morocco, \$1.25, net.

This little book contains information upon every question that comes to a nurse in her daily work, and embraces all the information that she requires to carry out any directions given by the physician; it includes also instructions for all emergencies that may arise before or between visits of the physician. It is of immense value to student nurses because it contains all the material they are expected to commit to memory from notes. Physicians, too, will find the book of value, because it contains exact details as to solutions, foods, dosage, poultices, applications, etc. There are also articles on bacteriology, massage, medical electricity, obstetrics, care of infants, and such information. The mechanical get-up of the book is both convenient and attractive. It is of a size to fit the pocket and is neatly bound in flexible morocco.

Saunders' Question Compend.—**Essentials of the Practice of Medicine.**—Prepared especially for students of medicine. By William R. Williams, M.D., formerly Instructor in Medicine and Lecturer in Hygiene, Cornell University; Tutor in Therapeutics, Columbia University (College of Physicians and Surgeons), New York. 12mo of 461 pages. Philadelphia and London. W. B. Saunders & Company, 1905. Double number. Cloth, \$1.75, net.

In this new volume in Saunders' Question-Compend Series the student is provided with a book of the utmost practical value. Throughout the work special stress has been laid on the more common aspects of the various diseases emphasizing the contrasting points in similar conditions, so as to render differential diagnosis as easy as possible. Symptomatology and treatment have likewise been adequately, although concisely, considered. In fact, this little work is the best we have seen, and for students preparing for examination it will be a most welcome and trusty aid. It contains a vast amount of practical, essential information in the least possible space.

Saunders' American Year-Book for 1905.—**The American Year-Book of Medicine and Surgery for 1905.**—

A yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from journals, monographs, and text-books of the leading American and foreign authors and investigators. Arranged, with critical editorial comments, by eminent American specialists, under the editorial charge of George M. Gould, A.M., M.D.,

In two volumes. Volume I, including General Medicine; Volume II, General Surgery. Two octavos of about 700 pages each, fully illustrated. Philadelphia and London. W. B. Saunders & Co., 1905. Per volume, cloth, \$3.00, net; half morocco, \$3.75, net.

The 1905 issue of Saunders' American Year-Book of Medicine and Surgery fully maintains the pre-eminent position which it long ago established. Dr. Gould, the accomplished editor, has associated with him a staff of men of the greatest ability, shown in the conscientious thoroughness with which each article is prepared. Here the practitioner has placed before him, and at a very moderate price, the cream of all the medical literature published during the past year, and in such form that it is readily digestible. As a compendium of medical and surgical progress, it will prove invaluable; for the practitioner anxious to keep abreast of the advances in the subjects treated, it will be of the utmost assistance. The text, as usual, contains a number of illustrations of practical value; there are also nine insert plates of much excellence.

A Text-Book of Medical Chemistry and Toxicology.—

By James W. Holland, M.D., Professor of Medical Chemistry and Toxicology, and Dean, Jefferson Medical College, Philadelphia. Octavo volume of 600 pages, fully illustrated, including 8 plates in colors. Philadelphia and London. W. B. Saunders & Co., 1905. Cloth, \$3.00, net.

The author of this book possesses the faculty of making even the most difficult and complicated chemical theories and formulæ easy and clear. This is probably due to his thirty-five years of practical experience in teaching chemistry and medicine. Recognizing that to understand physiologic chemistry students must first be informed upon points not referred to in most medical text-books, the author has included in his work the latest views of equilibrium of equations, mass-action, cryoscopy, osmotic pressure, dissociation of salts into ions, the effects of ionization upon electric conductivity, and the relationship between purin bodies, uric acid, and urea. Chemical substances he has treated from the standpoint of the medical student and physician, giving much more space to Toxicology than is given in any other text-book on chemistry. The chapters on the clinical chemistry of milk, gastric contents, and the urine, and that on water supply and filtration are full of practical information. The work will undoubtedly be warmly received by the profession, presenting as it does the mature experience of a practical teacher.

American Edition of Nothnagel's Practice.—**Diseases of the Blood.** (*Anemia, Chlorosis, Leukemia, Pseudoleukemia*). By Dr. P. Ehrlich, of Frankfurt-on-the-Main; Dr. A. Lazarus, of Charlottenburg; Dr. K. von Noorden, of Frankfurt-on-the-Main; and Dr. Felix Pinkus, of Berlin. Entire volume edited, with additions, by Alfred Stengel, M.D., Professor of Clinical Medicine, University of Pennsylvania. Octavo volume of 714 pages, fully illustrated. Philadelphia and London. W. B. Saunders & Co., 1905. Cloth, \$5.00, net; half morocco, \$6.00, net.

This volume on Diseases of the Blood is the ninth in Nothnagel's Practice to be published in English. It includes Anemia, Chlorosis, Leukemia, Chloroma, Pseudoleukemia, and each condition is treated so exhaustively and the theories discussed so carefully that the work will remain the last word on the several subjects for many years. Dr. Alfred Stengel, under whose ex-

cellent supervision the entire series is being issued, is also the individual editor of this volume. His wide experience and recognized ability as a clinician, and his valuable work concerning the histology, both normal and pathologic, of the blood, renders this volume of unusual interest. His additions are particularly frequent in the article on Anemia. When this series is completed—and the publishers assure us that the three remaining volumes will shortly appear—it will undoubtedly form the best practice of medicine in existence, expressing the opinions of the highest German and English speaking authorities.

Lea's Series of Medical Epitomes.—Edited by Victor C. Pedersen, M.D.

Alling and Griffin's Diseases of the Eye and Ear.—

A Manual for Students and Physicians. By Arthur N. Alling, M.D., Clinical Professor of Ophthalmology in Yale University, Department of Medicine, New Haven, Conn., and Ovidus Arthur Griffin, B.S., M.D., Late Demonstrator of Ophthalmology and Otology, University of Michigan, and Oculist and Aurist, University Hospital, Ann Arbor, Michigan. In one 12mo volume of 263 pages, with 83 illustrations. Cloth, \$1.00, net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1905.

The Medical Epitome Series is rapidly approaching completion, this being the seventeenth of the twenty-two handy volumes which are to cover the essentials of every branch of Medicine and Surgery. It is easy for students, and practitioners as well, to post themselves to date for examinations or practical purposes by reading these authoritative little books. Yale and the University of Michigan furnish the authors of this excellent volume on the Eye and Ear. These subjects are treated in a manner as clear, thorough and interesting as the necessary limits of space will permit. The illustrations are numerous and effective.

Hollis' Epitome of Medical Diagnosis.—A Manual for Students and Physicians. By Austin W. Hollis, M.D., Attending Physician to St. Luke's Hospital; to the New York Dispensary, etc. In one 12mo volume of 319 pages, with 13 illustrations. Cloth, \$1.00, net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1905.

Dr. Hollis' volume on Medical Diagnosis, just published, is the fifteenth of the series. It naturally does not claim originality, but it embodies an earnest effort to give a clear, accurate, compendious covering of the essentials of its subject, presented with a due sense of the relative importance of its various branches.

Diseases and abnormal conditions are taken up in regular sequence, and physical and clinical signs and symptoms are clearly pointed out with full explanations of their significance.

The Urine and Feces.—A Practical Manual on the Urine and Feces in Diagnosis. By Otto Hensel, Ph.G., M.D., Bacteriologist to the German Hospital, New York, and Richard Weil, A.M., M.D., Pathologist to the German Hospital, New York, in collaboration with Smith Ely Jelliffe, M.D., Ph.D., Instructor in Pharmacology and Therapeutics, Columbia University; Visiting Neurologist, City Hospital, New York. In one octavo volume of 334 pages, illustrated with 116 engravings and 10 colored plates. Cloth, \$2.75, net. Lea Brothers & Co., Publishers, New York and Philadelphia, 1905.

This is a compact, handy and trustworthy guide to the combined study of the urine and the feces for the actual needs of the busy practitioner. The importance of these subjects needs no emphasis, it is well known to the up-to-date clinician. Many important facts are rendered accessible in English, for the first time. The illustrations are excellent. We cannot commend the book too highly.

Progressive Medicine, Vol I, March, 1905.—A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 298 pages, 10 engravings and a full-page plate. Per annum, in four cloth-bound volumes, \$9.00; in paper binding, \$6.00, carriage paid to any address. Lea Brothers & Co., Publishers, Philadelphia and New York.

This volume treats of a variety of subjects—Surgery of the Head and Neck, the Thorax, Acute Infectious Diseases and Diseases of certain of the Organs of Special Sense—on the plan which has from its inception been the characteristic feature of the series. What these features are it is perhaps hardly necessary to specify in detail, after so long a period of satisfactory trial. They are essentially the product and the evolution of the conditions which govern the progress of modern medicine itself. The enormous annual output of medical literature—whether in the form of investigation into causes, pathology, symptoms, or therapy of disease—is in such grotesque disproportion to the reading capacity of any one individual, that the demand for some method of selection and of condensation becomes imperative. Unless the physician is prepared to be outstripped by his better informed confrères, and left stranded among the incompetents, it is absolutely essential that the main elements of this progress should become a portion of his mental armamentarium. To present in a continuous, connected and readable form the actual advances; to indicate the lines of future labor and progress; to condemn what is faulty and mistaken, and so to give the practitioner a firm and self-reliant grip on the movements of the day—these are its aims and, we may say, its accomplishment. Each subject is followed closely from year to year by some specialist who is chosen not only for his practical eminence, but also for his skill in literary exposition, a talent which is as rare as it is essential to the success of the undertaking.

The British Journal of Children's Diseases, edited by George Carpenter, M.D. London: Adlard & Son, 1904.

We have received a bound copy of volume I of this valuable journal, and we regret that space will not permit of our quoting at length from the many useful articles to be found therein. It is the only periodical of its kind in Great Britain, and there is no better to be found anywhere. Our readers have the assurance that *The British Journal of Children's Diseases* will meet their expectations.

The International Medical Annual.—A year book of treatment and practitioners index—1905. Twenty-third year. New York: E. B. Treat & Co., Price, \$3.00, pp. 620, octavo.

This volume commences a new series of this excellent publication, in which, the size of the page has been enlarged, thereby not only increasing the amount

of matter, but improving the physical appearance of the book. This annual is one of the best known and popular of any of its kind, because every page is crowded with the very cream of our literature, in the most condensed form possible, and then it is afforded at a very low price, within the means of all. Its index form, makes it a work for rapid reference, which saves time. There will be no increase in the price, in consequence of the size of the volume. Many of the subjects are well illustrated by means of plates and diagrams. Our readers cannot fail to be pleased with the book.

Malformations of the Genital Organs of Woman.—By Ch. Debierre, Professor of Anatomy in the Medical Faculty at Lille, with eighty-five illustrations. Translated by J. Henry Simes, M.D., Emeritus Professor of Genito-Urinary and Venereal Diseases in the Philadelphia Polyclinic. Philadelphia: P. Blakiston's Sons & Co., 1905. Pp. 182. 12mo, price, \$1.50.

The author has accomplished in this little volume his purpose in writing it, a treatise that will not fail to both interest and instruct the reader.

The general ideas of anomalies are applied to the study of malformations of the genital organs of woman, in a practical and scientific manner.

The Vermiform Appendix and Its Diseases.—By Howard A. Kelly, A.B., M.D., Professor of Gynecology in the Johns Hopkins University, Baltimore, and E. Hurdon, M.D., Assistant in Gynecology in the Johns Hopkins University, Baltimore. With 399 original illustrations, some in colors and 3 lithographic plates. Philadelphia and London: W. B. Saunders & Co., 1905. Pp. 827, large octavo; price, cloth, \$10.00, sheep, \$11.00.

This work, by one of the great masters, is probably the most exhaustive and elaborate exposition, now in existence, upon a single subject. Under the conviction that surgery and pathology are best taught by demonstration, the author has paralleled the text with graphic illustrations of great artistic merit, which help wonderfully to elucidate his meaning. We ought to emphasize the fact that the illustrations are not only original, but are superbly drawn by a genuine artist and one who is also a well-informed anatomist and careful pathologist, so that the morbid condition is accurately represented, for intelligent interpretation.

The increasing prevalence of appendicitis makes this work especially timely, and the character of the investigation upon which it is based, being beyond question, its value to the profession can hardly be estimated. The text is classically written in language that cannot be misunderstood.

It is due the publisher to say that his part is in the highest art of the book-maker. The type is of a size easy to read, and the illustrations are beautifully brought out.

The book will certainly reach the hands of those interested in its subject.

The careers of 1,000 medical students who had studied in the school of St. Bartholomew's Hospital has been followed up by Sir James Paget: 23 met with distinguished, and 66 with considerable success; 507 were fairly successful, 124 to a very limited degree; 96 discontinued medical studies while in pupilage, 41 died while pupils, and 87 died within twelve years of commencing practice.

CORRESPONDENCE

MEDICAL THOUGHTS.

To the Editor of THE MEDICAL TIMES:

One of our most prominent analysts makes a report of a preparation introduced to the dear people by a proprietary medicine company. Such report came up and was freely advertised in a pamphlet issued by the company. The analyst seeks \$2,000 damages and the company publishes the fact in very big letters, thus doubly advertising—catching the public eye of the credulous and dear people.

In no country does medical education cost more than in this province. A recent graduate, one whose parents reside in Toronto, informs me his M. B. Tor. University, board and railroad expenses not included, cost \$1,089. The expenses in connection with the preparation for matriculation are not named.

If lectures relating to the history of medicine and the eminent men in it, such as can easily be named, were given, students would be led to have greater regard for the profession. It is said of Alexander that when asked to compete in the Olympian games he replied that if given kings as competitors he would enter the list. If students are taught the dignity of the profession and reminded of Alexander's answer, we would have more kingly men in medicine—and competitors worthy of kings medical.

A hobby is essential to every M.D., for no one, however strong in mind and body, can exist and preserve his usual strength therein unless relaxation be observed. Music, literature and such investigations as Osler admires, or such as Weir Mitchell masters, are enjoyable and very profitable to self and the medical world. Our talented young fellow-countryman, Dr. Fischer, of Waterloo, author of *Songs by the Way Side*—a most charming selection—possesses the talent for such relaxation with the Muses—his sketches of the lives of master minds in medicine, appearing with that of William Harvey as the first in the list, are worthy of Goldwin Smith or Professor Cappon, of Queens. Osler says Fischer's songs "have the true ring."

Goldwin Smith, I think, is the author of the saying: "I believe I shall live long enough to see the last woman, the last horse and the last poem," and I am of the opinion that there are living those who will see the last M.D., and one medical college where now there are ten such institutions; nurses with "draught, diagnosis, counsel, exhortation" are rapidly assuming duties but very recently the lawful ones of the doctors, and the training of nurses of Johns Hopkins, if duly investigated, is really more in practice than that of nursing, and prophetically I see their profession (?) looking for university degrees—and then the *double qualification* (dispenser and nurse) will result. These are considerations worthy of discussion and a paper before our Provincial, State or Dominion Medical Associations. *Quis inter nos dubitas?*

The restrictions of the several new Western Provinces are so exacting and so expensive in regard to the obtaining of licenses to practice that many of our fresh M.D.'s, unable to bear the expenses and delays especially of such examinations, are compelled to seek homes in the United States, and as this statement is made, proofs of it can be had by referring to the

calendars of McGill, Toronto, Queens, Western and Bishop's Universities. In one year the graduates of one of these universities, numbering nearly seventy, with the exception of twenty-six, went to, and are now residents of the United States.

The several medical journals which reach my office, after removing every advertising page and every advertisement, I bind, and in this simple manner: arranging the numbers of each volume in regular order, I fasten them by wire nails, generally three, in careful order, so as not to interfere with printed matter. When so held, the back and covers with ordinary coarse cloth, can be well and artistically protected. On the back I mark the name of journal, its number and the year of publication.

If the *code of medical ethics* was studied or even referred to, now and then, by our journals, or mentioned during the medical sessions to our students, it is evident there would not be so many U. S. pamphlets recommending the pharmacal or proprietary medicines (really quack compounds) with Doctors' testimonials named—and received by us—even daily. The ignorance of some cheap M.D.'s is hardly pardonable, but when the *professor* in some alluring article (price \$25) refers to and endorses, even dishonors an old time remedy for a quack compound, one of *ols* or *ines*, it disturbs our composure and I think the bottomless pit the proper place for this Judas—this traitor—yet there are those who would deny the right of existence of the *code*—and such are the arch-traitors, and to be *brief* are connected as *silent partners* with the patent medicine concern around the corner. Medical journalism is doomed if it even touches the fingers of proprietary medicines—are there not signs of the writing on the wall?

In our village drug store, I saw recently three medical journals. I told the druggist: "In the name of heaven and of my fellow M.D.'s, burn, or keep out of sight such—especially *this* journal, for it is disgracing medicine and us,"—it is needless to name the journal.

JAMES S. SPRAGUE, M.A., M.D., C.M.

Stirling, Ont., April, 1905.

MEDICAL DEMOGRAPHY.

To the Editor of THE MEDICAL TIMES:

In the March issue of the TIMES, there appeared an article written by Dr. A. N. Ulrich, on "Curious Facts Concerning Medical Demography," in which Dr. Ulrich quotes Dr. Corson, of Savannah, Ga., who says, before the war the negroes were less susceptible to malarial diseases than the whites; that the mulatto has lost his immunity, such as his pure African ancestors enjoyed; and does not possess "the robustness of the Anglo-Saxon." In his article Dr. Ulrich also quotes Dr. Byers, of North Carolina, who says the "mortality" and criminal record of the colored race has been doubled since the Civil War, therefore, the negro is doomed to destruction. Now, it was said, more than forty years ago, that the negro would become extinct, through the ravages of "F. B." and venerealism. But, contrary to expectation, the Afro-American increased from four and a half to ten millions, and seemingly, there is no let-up in their natural increase. In this respect the negro, with his increased intelligence and assimilation to modern ideals, unlike the higher or middle classes of England and America, has not lessened their fecundity, consequently, the tremendous increase of the colored race has upset

all calculations, and has put the conclusions and theories of the statisticians out of business. Where there is a large birth-rate we naturally look for a corresponding death-rate, especially so in view of the fact that the colored race is now passing through a transitional period. With increased knowledge of the laws of hygiene, gained in their schools, and general education, there will be a decrease in infant mortality. When it is known that the economic condition is also a causative factor,—the colored mother is largely a breadwinner, she must work to help to keep "soul and body together,"—their increased betterment of that condition will reduce infant mortality. In San Antonio, Texas, for example, where 14.1 per cent. of the population is colored, according to the Bulletin of that city's Board of Health for February, there were 153 deaths among the whites, and only 19 deaths among the colored. The statement that the mulatto is a deficient physical unit, in our American population, from a physical standpoint, is not warranted by any scientific evidence. If the product of an African and Anglo-Saxon does not inherit the strength as well as the weakness of his progenitors, then, it is contrary to the teachings of the science of biology, and there is no law in nature which says a child cannot inherit the physical characteristics and tendencies of the parent. If the parents are healthy and robust, it is probable the child will be likewise. If, on the other hand, the one or the other parent is alcoholic, neuropathic, or has a tubercular diathesis, then, it must follow that the child comes into the world handicapped. This, then, is not a racial characteristic, but a *condition*. Furthermore, much that is labeled as "criminal" among the colored race in the South would be passed over, and is passed over, among the whites of the South. The race prejudice of the whites vs. the colored race in the South makes it a crime for a colored person to ride in the same railroad cars, eat in the same restaurant, drink in the same gin mill, or worship in the same church. But here in the North it is different. Hence we must accept such conclusions or statements of Corson or Byer with mental reservation.

CHIRURGEON.
New York.

Sodium Chloride Hypodermoclysis in nephritis is considered by Ferrannini (*N. Y. Med. Jour.*), who points out that although the introduction of an excess of chlorides is regarded as likely to aggravate an existing nephritis, the injection of sodium chloride solutions continues to be a favorite method of treatment when the eliminative functions of the kidneys are greatly impaired. Ferrannini believes that all the harm that can come from the limited use of sodium chloride in the manner indicated in nephritis is that the albuminuria may be slightly increased for a short time, and that the renal elements in the urine may for a time be present in large numbers. This increase is, however, followed almost immediately by a considerable diminution in the amount of albumin and in the number of renal elements eliminated, together with a general improvement in the condition of the patient. During an access of uremia hypodermoclyses of salt solution are also beneficial, increasing the renal function; but they should not be used as a systematic treatment in Bright's disease, because, in the long run, if used often and incautiously, they may disturb the action of the kidneys. Hypodermoclyses are, in fact, only for use in emergencies.

RETROSPECTIVE THERAPEUTICS

Controlling a cough without drugs.—From Saranac Lake, whence come so many beneficent inspirations relating to the treatment of consumption, we are advised that causes of cough other than the structural ones (tuberculosis, pleurisy, etc.) are: smoking, irritation of cold sheets at night, exposure to sudden temperature changes, wind, dust, exertion, rapid walking, talking, laughing, etc. The open-air cure is the first and best remedy to be tried—faithfully. Sometimes the cough is due to nervousness and can be largely controlled. Many simple devices may be tried: the reclining position, the avoidance of talking and of hearty laughter, sips of cold water with a little lemon or orange juice, tablets of Iceland moss, slippery elm or glycerin; very slow deep breaths, holding the breath, etc. The advertised cough remedies have often a deleterious effect upon the stomach.

The tuberculous cough most frequently in the morning, either before or just after rising. Some secretion must then be got rid of. The productive cough (accompanied by expectoration) must be distinguished in treatment from a dry, hacking cough. Sometimes mucous can be expectorated without coughing. Coughing on rising may be alleviated by a cup of hot milk, or of coffee (cereal, if possible), or a glass of hot water with ten to fifteen drops of aromatic spirits of ammonia or of lemon juice. A tight cough at night is often helped by a cold pack on the chest and neck.

Delirium Tremens.—J. R. Clemens (*N. Y. Med. Jour.*) considers both prophylaxis and the treatment of the attacks. Attacks may be aborted by initial calomel and saline purging, moral suasion and generous feedings of milk and beef juice every two hours; sulfonal or paraldehyde or hyoscin (gr. 1/200—1/100) may be needed. Alcohol may have to be administered, especially should lobar pneumonia be developed, or as a heart stimulant. Elderly or very weak patients should be induced to take food, and should if necessary be bribed by means of a drink to this end. Narcotic and stimulants are contraindicated in young subjects. A little tonic with strychnine, the latter by hypodermic, if necessary, are indicated. The condition of the heart and kidneys generally preclude the use of opium or alcohol. Constant watching is essential. If necessary a damp sheet should be passed across the bed over the patient and tied to the bed railing. The treatment of the delirium should be secondary to that of the heart and lungs. G. S. Weever recommends for insomnia a combination of ammonium bromid. 5i; sulphate of morphia gr. ¼; and chloral hydrat. gr. x—xv, in conjunction with cold douches and packs to relieve the delirium. After this has passed away two grains each of quinine and powdered capsicum with ¼ grain of nux are given every four hours. An irritable stomach requires a combination of bismuth, oxalate of cerium and sodium bicarbonate.

Tuberculosis of the Middle Ear.—In describing a case of bilateral involvement Dunbar Roy, of Atlanta, Ga., states his opinion that if there is free drainage of the tympanic cavity through the auditory canal; if there are no granulations present and no symptoms of facial nerve paralysis; if the mastoid does not show, and has never shown any signs of involvement; and if there are no extensive areas of necrosis the condition should be treated expectantly through the auditory canal. If

there is facial paralysis and there are extensive granulations extending out into the canal; if the mastoid shows or has shown involvement, whether tubercular or not, and there remains sufficient vitality to withstand the anesthetic, the radical operation should be done immediately.

Bathing During Menstruation.—Edgar, (*Am. Jour. Obstetrics*, Sept. '04), considers all forms of bathing at this period to be a matter of habit. Surf bathing, however, when the body surface remains chilled for some time, should always be avoided. During this period a daily sponge (85° to 92°) is not only harmless but demanded by hygienic considerations. After the second day of the flow this sponge is in most cases perfectly safe, and most women can with safety acquire this habit if they are not accustomed to it.

Serum Treatment of Typhoid.—Chauteau (*La Presse Medicale*, October 26, 1904), by means of his serum derived from horses inoculated by a soluble typhoid toxin, has reduced the mortality in his 523 cases to 4 per cent., as against 18 per cent. in 2,618 cases treated in other Parisian hospitals where ordinary hydrotherapy is employed. Complications are less likely to occur under the serum treatment, especially if it be used early. The dosage should be less in the severe affections than in those of mild degree.

Haemoptysis requires (G. H. Fitzgerald, *Cleveland Med. Jour.*) absolute rest; mental quiet and relief from fear, to insure which bromide or morphine and atropine may be essential; control of cough, fever and pleuritic pain and careful attention to diet; ice caps over the heart, salt and cracked ice by mouth, etc.—suggestive measures; nitrates or veratrum when high pressure persists; care in not overdressing or in placing reliance on supposed specifics such as ergot or adrenolin; hypodermoclysis with normal salt solution when indicated. We would add McLaughlin's method of strapping the chest described in these columns. F. Hare (*Interstate Med. Jour.*) urges the use of amyl nitrate on the same principle which governs the use of nitroglycerin, that the sudden fall of blood pressure permits some coagulation and plugging of the leak sufficient to resist successfully the subsequent rise.

Gastroenterostomy is likely to have a vogue approximating in fashionable esteem the removal of the appendix. Among various methods of operation is that of Moynihan (*Jour. A. M. A.*, Dec. 24, '04) which is extremely simple, rapid and secure in skilled hands, and is not attended with exposure of the viscera. Incision is ¾ in. to right of the median line, the fibres of the rectus being split. The great omentum and transverse colon are turned upward over the epigastrium, a small incision made in a bloodless spot of the transverse mesocolon and the finger passed into the lesser sac. The left hand makes the posterior surface of the stomach appear at this opening, the right hand pulling it through. A fold of from 3 to 4 inches is seized with a clamp sheathed in rubber tubing. The portion embraced extends from the lowest point of the greater curvature obliquely towards the lesser curvature and the cardia. The jejunum is pulled taut from the flexure and laid against the posterior surface of the stomach. This point is then clamped. The jejunum thus forms a straight line, not a curve, and regurgitant vomiting is avoided. Everything except the clamped portions is returned to the abdomen, the operation area covered with gauze wrung out of hot salt solution, and a con-

tinuous suture unites the serous and subserous coats of the jejunum and stomach for $2\frac{1}{2}$ or 3 inches. An incision is made through the serous and muscular layers and the pouting portion of the muscular layer is excised. An inner suture embraces all the coats, the clamps are then removed and the outer suture continues to the starting point. Two or three stitches unite the slit in the mesocolon to the jejunum close to the suture line.

Eye-strain and the Psychoses, considers C. L. Dana, (*Med. News*, July 30, '04) have relations not easily established. It is necessary to define definitely the term "eye-strain." Dana defines two kinds of straining. In the one it is the automatic effort of the midbrain and oculomotor nerves to adjust the eye in such a way as to overcome abnormalities in refraction, accommodation and imperfect muscular balance. This kind of straining is largely done unconsciously, just as a person with one leg shorter than the other unconsciously adapts his posture and gait to the deformity. This eye-strain does not involve attention or conscious mental effort, except casually. It is mostly subcortical and is a kind of spinal eye-strain. The second kind of eye-strain occurs when the eye is more seriously defective, or the receiving apparatus of the brain is fatigued. Then the cortical centres are brought into play. "The imperfect vision is appreciated with some sense of defective working and a distinct and fatiguing effort is made to supplement the ordinary mechanism of the eye, and a sense of this effort, to the point of distress, may result." Eye-strain of this sort would thus appear to be really a brain-strain—the only kind of strain that can do any widespread harm. Here we may find the cause of the minor psychosis as typified under the general term neurasthenia. As regards the major psychosis, Dana considers that alienists, "without exception, do not recognize eye-strain, even as a contributing cause;" furthermore, after sixteen years of watching he has found hardly any cases in which eye-strain is an important and direct actor in establishing even a minor psychosis, though it modifies its symptoms and secondarily adds to the disturbances."

Radio-activity is then a tremendous factor in the evolution of the heavenly bodies; besides a satisfactory explanation of the radiant coronae of the stars, we have now also a reverse process of agglomeration of the luminescent emanation into larger masses. The localization of critical conditions of temperature in the heavenly bodies, and hence localization of radio-activity would seem thus to account for many of the hitherto inexplicable phenomena of the sun stars, new stars and comets. From this transfer of the study of radio-activity to the stars, considers Snyder, clearer conceptions on the entire group of physical sciences may result.

Quinquaud's sign in abuse of alcohol was tested on 468 individuals—total abstainers, moderate drinkers, and abusers of alcohol—by Fürbringer (*Deutsch. Med. Wochens.*, '04, xxx, 977). This sign is considered characteristic of alcoholic abuse. It is elicited by having the separated fingers placed vertically against the palm of the examiner. After two or three seconds, during which nothing is felt, slight shocks are noted, as if the bones of the fingers hit sharply against each other and against the hand of the examiner. The sign is, therefore, a crepitation of the phalanges. After long testing the sign is not elicited; it returns after a period of rest. Fürbringer concluded that individuals not presenting

the sign are without doubt abstainers or moderate drinkers, at least in 75% of the cases. No conclusion can be reached if the crepitation is present to a slight degree. However, this sign is not so good or so regular as alcoholic tremor.

Laryngeal cancer is ably discussed by Sir Felix Semon (*Med. Rec.*, November 5, 1904), who insists upon intralaryngeal removal of a piece of the growth for microscopic examination, so that diagnosis may be assured before operation. The author agrees with Krishaber that if the growth is confined to the intrinsic region, is limited in circumference, and has neither infiltrated the framework of the larynx nor infected the neighboring lymphatics, it is possible in a large number of cases to save the patient's life without resorting to total extirpation. Lemon considers that the diagnosis should be made at the earliest possible moment; that early in the disease clinical diagnosis may be sufficiently accurate in many cases; that it ought however when possible, to be confirmed by the microscope (Semon has no record of any case of auto-infection by this procedure). If immediate operation is necessary, explorative thyrotomy is in order. The advisability of subhyoid pharyngotomy is still *sub judice*. Thyrotomy is in most cases an ideal operation for intrinsic laryngeal cancer. Hemi-laryngectomy may be resorted to when, after opening the larynx, it is found that mere thyrotomy will not suffice. Total removal of the larynx and the tributary lymphatics should be reserved for extrinsic cases and intrinsic ones when both sides of the organ are affected and in which the disease has progressed beyond the employment of milder means.

Hysterical movements are often mistaken for manifestations of chorea or convulsive tie. Oftentimes they are quite skillfully initiative of symptoms due to these structural diseases. H. T. Pershing (*Jour. A. M. A.*, February 11, 1905) gives valuable diagnostic points. One characteristic of hysterical movements is that they can be produced voluntarily. The more regular the movement the greater the probability that it is hysterical. It must be remembered that this affection may complicate other conditions. A rhythmic oscillation involving one part points to hysteria, as also highly co-ordinated movements—jumping or dancing, with or without impairment of consciousness. Chorea may simulate hysteria and be due to similar emotional causes—here the diagnosis is different. Hysterical movements are more likely to be regular and grouped in distinct paroxysms and to have more of the staccato movement. Jacksonian epilepsy may here be simulated, especially as regards the movements of a limb; however, there is in hysteria no rise of temperature, no paralysis and no mental deterioration. Prognosis and treatment must be guided by general principles. Cure of hysteria is always possible, though the condition may be obstinate. Moral treatment is imperative. If the patient's mental processes can not be happily directed, everything else will be useless. It is essential to recall that hysteria is a disease in which "morbid ideas control the body" (Moebius).

Cremation makes but slow progress in England, in part because of the judicial decision that, unless express instructions had been left by the deceased, an executor could not dispose of the remains in this way. This decision is on the grounds that everyone is entitled to Christian burial, which cremation was held not to be.

DISTRUST OF DOCTORS.

Under this caption, the *New York Evening Post*, of February 4th, has evinced a welcome and a very sincere appreciation of the work of physicians—work, it thinks, much too little thought of by the laity. And it considers several reasons for this lack of appreciation. "Side by side with the immense development and authority of modern medicine, one encounters strange signs of revolt against its claims and its practices." Chief among these signs is the vast removal of superstition lurking behind the great vogue of all sorts of faith cures and mental healings. The point here is that there is a great, perhaps a major, contingent of the human race, who want to be impressed by means which seem to them to be supernatural and to savor of the miraculous; for "cures" of this sort, they are ready to pay good money. Such "easy marks" (not the *Post's* expression) are rather prone to avoid a regular physician who frankly informs them of the true state of their case, bases his diagnosis upon reasonable and purely rational conditions, and offers to relieve them by simple and easily comprehended means.

"Such crude denial of fact and rejection of experience do not, however, make up the whole case of the distrust of doctors. Much skepticism about medicine goes only halfway; the general principal is accepted, but specific applications are called into question." And this is a fair criticism, we think. For medical men often go too far in their requirements. People will, under ordinary circumstances, not boil water which they find by experience has not harmed them. They are going to continue to exchange greenbacks no matter how many millions of bacteria are to be found upon every square inch of the "long green." They are not going to believe that because they have seen somebody spit upon the street, they will within the week be down with consumption. These things are contrary to human experience. This distrust is usually more of the medical profession impersonally than of individual members of it. "How grudgingly is medical inspection of schools provided for and paid for; what shabby treatment has been meted out to the profession in various ways in connection with the military service. These grasping fellows, the argument seems to run, are all the while making an outcry about unhygienic conditions in the public schools, and about the need of sanitation in the army, just to magnify their offices and to get themselves jobs." Yet this impression goes hand in hand with the fact that medicine is of all professions by far the most ruthlessly exploited; that practically no other men than physicians give so much of their time, their skill and their strength; in no other calling is work so freely given, without money and without price; nowhere else is service so much undervalued and rewarded with so little thanks. How little is it realized that in proportion as physicians interest themselves in matters of public sanitation they are actually lessening the conditions upon which their livelihood depends.

Yet in a way there is poetic justice in all this. There is a precious lot of false dignity in the profession. The world generally values a man's services at just about as much as they will bring; and, after all, the world is right. When a dispensary patient, one of the many thousands who are able to pay one, two or five dollars, gets his diagnosis, his treatment and his pills all for fifteen cents, he generally reaches the con-

clusion that what he has got is worth just about that much and no more. It is a colossal mistake in the medical profession to do so much for nothing or practically nothing. The Founder of the most just and most reasonable system of ethics the world knows of, sent out His followers to preach His gospel (and this was a calling therapeutically at least even more self-abnegating than that of medicine); and if in any city meat and drink were refused them, they were to curse that city, shaking its dust from their feet, "for the laborer is worthy of his hire."

MOSES MAIMONIDES.

Seven hundred years ago this great physician and philosopher died. Rambam is the name by which he is more familiarly known to Jewish students, from the initials of his name, Rabbi Moses ben Maimon. Born in Cordova, Mahommedan religious persecution drove his parents, when he was still a young boy, from the land of his birth to take refuge in Egypt. There he eventually became court physician to the Vizier Alfahdel, and the acknowledged leader of the Jewish community of Cairo. He was learned in the Jewish legal code and it was he who formulated the thirteen articles of the Jewish creed. In philosophy he was a pronounced Aristotelian. The popular respect and affection in which he held found expression in the judgment: "From Moses (the prophet) to Moses (Maimonides) there arose none like Moses (Maimonides)." In those days and later in the Middle Ages, the Jews were the greatest physicians, and their services were demanded by potentates of most diverse creeds. There were popes, for instance, who issued bulls forbidding Jews to practice medicine or to engage otherwise in the learned arts, but privately they retained and required the services of Jewish physicians, as being the best in their day and generation.

Compulsory vaccination is not an infraction of personal liberty, nor is it an unconstitutional interference with the right of the individual to have the smallpox if he wants it and to communicate it to others—at least not in these United States. For the Supreme Court at Washington has decided that, as ordered by local Boards of Health under legislative authority, compulsory vaccination is not an infraction of the liberty of the individual as guaranteed by the Constitution. This ends the occupation of many a crank, at least so far as this particular form of idiocy is concerned.

An "Easy" Profession.—"Let every physician," counsels Roberts, in *N. Y. Med. Jour.*, "refuse to accept samples of secret medicines, refuse to waste his time talking therapeutics with smooth-tongued salesmen." His stereotyped reply to all such agents is that he does not prescribe medicines of whose composition he is kept in ignorance. This has saved him many hours for more advantageous occupation. It has been computed that \$60,000,000 have been spent for patent medicines in the United States in one year, enough to give every practitioner in the land an annual income of \$2,000. How many medical men are getting such an income? This situation is worthy the consideration of every self-respecting physician.

There is something in medical ethics, concedes the *New York Times*. Laymen are sometimes amused because reputable physicians are forbidden by their code to vaunt publicly special skill of any sort. The wisdom of this ruling is well illustrated in two cases which were recently brought to bar by Champe S.

Andrews, Esq., the skillful counsel of the New York County Medical Society. A dreadful tale of reckless and dishonest exploitation was here revealed. A detail is the following: a poor, hard-working carpenter was relieved of \$10,000, the savings of many years. His case, purely a psychic one, was declared remediable by only the most desperate means—the application of radium. The quack declared the radium cost him \$12,000, and that he was losing money in treating this poor man. When the quack was arrested the tube of "radium" was seized. The Lederle Laboratory examined its contents and found them to be ginseng, ordinary tonics and coloring matters; there was not a findable atom of radium present. Yet the advertisements of these two men, as of many others, are accepted in many otherwise respectable lay papers. The *Times* considers that the sentiment of the profession against advertisement is sound; for this encouraging observation we are obliged. "In this, as in so many other instances, even the commission of a wholly artificial crime implies something like moral weakness in him who commits it, since it first implies a reprehensible indifference to opinion enlightened and therefore worth heeding. Not all orthodox doctors are good doctors, nor all 'heterodox' doctors bad ones, but there is no doubt at all that a large majority of the good doctors come in the first class, and a large majority of the bad ones in the second. There is a warning in this, and the public needs to exercise a lot of care in deciding on the exceptions to the rule."

Creditors have a hard time of it in China. It seems that a Canton storekeeper sued before a mandarin for a debt of several thousand dollars. Palm oil reached this functionary and the plaintiff not only lost his case but was required to pay the defendant debtor fifteen hundred dollars. This he determined not to do. So the debtor hired a dozen women, old and young, to eat and sleep in the creditor's shop at his expense. Thereupon the latter in turn hired several lepers to stay in his shop. This dispersed the women.

Manuel Garcia's Centenary was celebrated in London on March 17th. Some sixteen societies from all parts of the world were represented. Before the discovery of the laryngoscope by this famous teacher of singing, the sense of touch was the only means of diagnosing laryngeal growths. This invention has opened immense horizons to science, has put within its range many diseases the existence of which could never have been suspected, has made possible their treatment and has saved numberless lives from suffering and death.

Sir Felix Semon, in a felicitous speech on this occasion, commented upon the unusual spectacle of two liberal professions, which, while always friendly, ordinarily had few points of contact—music and medicine—uniting to emulate one another in honoring this great benefactor of mankind. In Mr. Garcia's reply there was humor as well as emotion. "There are so many of you to be greeted, old friends out of the past, old pupils, comrades, children! Ah, children! Sixteen societies of laryngologists, and mostly come of age, calling me 'father!' They will have it so, and I am pretty proud of the title, I can tell you. Well, do you think one solitary man could find fit words to answer all these voices? But you can do it for me. There is an old story some of you may remember, which when I read it changed the aspect of things for me by its very name, for this was a stroke of genius. 'Put Yourself in His

Place.' What a different world it would be if we all did that! Well, you try now. Try hard. Think yourselves each one hundred years old to-day—not the ladies, I will not ask them. Though they may come to that, they never will look it, and they will never know it, and no one will ever believe it. But you men can try. Fancy you each have lived one hundred years and woke to-day to find yourselves surrounded by kindly clamorous voices, 'troops of friends,' what would you say? I think you would say nought. Only the infinite nought which circles all things could give an adequate answer to you all."

Milk adulteration has been punished in at least one case by jailing of the offender, who was not given the alternative of paying a fine. He was sent up for ten days, the first commitment in New York City since the vigilant crusade against milk dealers was begun early in the summer of 1904 by the Health Board. This was considered by the court to be the "rawest" case ever brought to its attention. The defendant was caught with forty quarts of "stuff" which looked like water and had been used for washing out milk cans. The analysis proved that it was not even good water.

Premature Burial is the title of a book by F. W. Tebb, an Englishman, who concludes that the only absolutely satisfactory evidence of death is supplied by putrefaction, usually evidenced by the change of the color of the abdomen. To insure this safeguard Mr. Tebb advises that waiting mortuaries should be erected by every sanitary authority at the public expense.

Coercing the Doctor is the title of an item in the *Pall Mall Gazette*, which should give every physician at least fifteen minutes of deep thought. The wife of a Russian tailor in London was attended in confinement by a hospital surgeon. The latter, finding the case (a purely charity case) a simple one, instructed his assistant to attend to it, but intended also to remain himself. The assistant was not permitted by the family to proceed, and three men were called in to bully the surgeon. When he put on his coat as a preliminary to indignant departure, it was attempted to detain him by force and the husband seized him by the throat. This has been by no means an isolated case of attempted or achieved detention of the doctor in such circumstances. The point is that the demoralizing theory seems fairly universal that hospital services are everybody's right. The husband received a two-months' sentence at hard labor.

Refraction in children is ably discussed by Claiborne (*Jour. Am. Med. Assn.*, Dec. 10, '04), who finds that eye-strain produces a variety of nervous symptoms of which headache is the most pronounced. Refractive errors, with or without imbalance of the external ocular insides, cause this affection. The latter alone may be the cause; the former is far the more frequent, however. The headache is either frontal or temporal, and is chronic or induced directly by near work. Hemisrania due to eye-strain is comparatively rare in children. Nervous symptoms in children should arouse the suspicion of ocular defects. The refractive error should be made out under atropine. Muscular defects are secondary to the refractive, and should be corrected only in certain cases. These affections require very careful consideration; many a "backward child" becomes bright after their eradication.

MISCELLANY

Alopecia and Dental Caries are believed by some physicians to be interdependent conditions.

The sterilized rubber glove should never be adjusted to one hand by means of the other. The glove should be manipulated by means of sterile towels.

A lottery to encourage vaccination has been established in Madrid. The mayor presents a ticket to each person who submits to this dreadful operation.

The death-rate from tuberculosis has markedly decreased during the last twenty years. It is not too much to expect that this disease will be practically exterminated in this century.

Life insurance for total abstainers will probably be less expensive in the future, for statistical records show that as a class these applicants live longer by from 20% to 50% than moderate drinkers.

Quinine in ten-grain doses after urethral instrumentation will often obviate chills. Five grains of this drug the morning after the giving of a cathartic will often obviate prostration, especially in the elderly.

The *Book of the Unknown Dead* is the gruesome title of the record kept of coroners' cases in New York City. Descriptions are kept of bodies and of clothing, with photographs. Identifications by these means are frequent.

Eye strain induces alcoholism, is a theory recently set forth. Our impression has been that the reverse is oftentimes the real sequence. It has been considered, therefore, that spectacles will cure inebriety—a triumph of hope over experience, we fear.

Railroad first aid to the injured is assured on the Pennsylvania Road by means of medical boxes sent out to various points. These boxes are wooden and oblong, and contain bandages, compressors, etc. There is an inner compartment of tin, which, when once opened must not be used again, but must be returned to headquarters for fumigation and replenishment.

Lady Curzon's illness has already cost some \$50,000, one-half of her husband's salary as Governor-General of India. Several famous specialists, states the New York *Tribune*, have lived for days together, at Walmer Castle, with fees of \$500 apiece a day, while each time additional medical attendance or even medicaments were needed from London special trains were engaged.

A "pertinacious electrical current" is described by Sir Oliver Lodge as a persistent current which would overcome great obstacles and go in any direction regardless of what stood in the way. He has applied such a current successfully in his prolonged experiments for dispersing fogs. Perhaps Sir Oliver Lodge has solved the venerable riddle of what would happen if an irresistible object were to encounter an impenetrable wall.

A union of medical societies into one *Royal Society of Medicine* is contemplated in London. This would save the time and money of doctors who find it necessary to belong to more than one society in order to keep up-to-date. But then how would place be found for all the men who want to read papers; or for all the wonderful cases of cure which the successful physicians would want to present for the admiration (and envy) of their fellow-practitioners. Or how could sufficient offices be found with which a grateful profession

might reward the services of men zealous in well-doing.

The *Rachitic Hand* is described by Koplik (*Arch. Pediat.* '04). There is an incurved appearance of the fingers at the situation of the joints. The middle of the diaphysis of the phalanges are bowed and thickened. This thickening is entirely of the bones, the fatty tissue not being increased. The fingers are longer and more tapering than usual in the hands of an infant of this age, due to a laxity of the ligamentous structures of the joints of the phalanges, while the distance between the extremities of the phalanges which make up the joints is greater in the rachitic than in the normal hand.

"Corn cures" are a homely but important topic, profitable to the man who is not above considering them. The *International Journal of Surgery* advises a combination of salicylic acid (10%) cannabis indica and flexible collodin, a drop of which the patient must apply with a match to the trimmed surface of the corn, but not beyond. Each succeeding night for a week he applies another drop directly over that of the night before. At the end of that time and directly after a hot foot-bath the surgeon will usually be able to lift out the corn, "root" and all. A second week's application is sometimes needed.

Chlorine water is advised by P. W. Latham in erysipelas, scarlet fever, diphtheria, and other forms of blood poisoning. He attributes the value of perchloride of iron to the free chlorine which it contains. It is unnecessary to give the iron, which if prescribed in large doses will irritate the alimentary tract. Chlorine water may be prepared by adding 20 grains of chlorate of potassium contained in a strong jar or bottle to one dram of hydrochloric acid. Violent chemical reaction takes place with the formation of free chlorine and potassium chloride. Water should then be added ounce by ounce, the bottle being agitated, until there are twenty ounces of fluid.

Brilliant surgeons are not wanted, considers Sir Frederick Treves, who looks upon genius as "some sort of neurosis, an uncalculated nervous disease. The few men of genius I have met were exceedingly impossible persons." (Impossible to Sir Frederick; but perhaps very pleasing and essential to very many other people.) However, in the medical profession, "they are certainly out of place," here "even cleverness is not to be encouraged. Indeed, of all desperately dangerous persons the brilliant surgeon is the most lamentable. Cleverness finds its proper field, not in the operating theatre, but at the Egyptian Hall." A smart and even brilliant observation, this latter; but neither a safe nor a just one, we think.

A motor ambulance has been tested at the headquarters of the English army medical corps. This car, besides being an ambulance, may be useful for the generation of electricity, the lighting of field hospitals, the manufacture of ice, the sterilization of water, and many other useful purposes in the field. An effective protection against rifle bullets, at least, is afforded by an armored plating, one-quarter of an inch thick. This car is supposed to advance to where the wounded lie, even to the firing-line. Then stationary armor flaps would be opened and complete protection afforded to the wounded and dressers while first aid is being rendered, after which they would rapidly be sent to the rear.

SANITATION AND ISOLATION, TWO REQUISITE FACTORS IN THE ERADICATION OF THE TUBERCLE BACILLI.*

BY WILLIAM HOOKER VAIL, M.D., ST. LOUIS, MO.

MUCH learned literature has been written and published on this noble and all-important subject, respectfully mooted by all classes of men of common sense and learning. Yet the woeful disease separates loved ones by the thousands, from that most sacred place—the home. It is increasing its number of victims in the face of all opposition. It has become universally a menace to human life. It has turned the land of our cities into a vast Golgotha. I believe it is the most infectious and contagious disease that we are called upon to treat. The intricacy and capriciousness of the disease and the idiosyncrasy of the individual, call forth the greatest intrepidity and effort from all forethinking citizens, from all over this globe, that we may attain a perfection of sanitary cleanliness so complete in detail, that the intricacies of infection may be reached and effectually destroyed in order that all creatures may dwell in this beautiful world with impunity.

The profession has conceded its inability to combat its steady increment among our people or perfect a method of treatment which carries with it the respect of the profession and the laity. The work has been left largely to the capitalist, the philanthropist and the humanitarian. Many things in this regard that should have been given the most careful solicitude and consideration by the profession have been, I am sorry to say, shamefully and unpardonably disesteemed by those who were in a position publicly, politically and financially, to influence and perfect ways and means for its compulsory relegation. Physicians are to blame for this direful state of affairs, that still no halter has been placed upon its unlimited dissemination, though for years, an urgent perfection of sanitary measures and isolation of the subjects has been known to check all other direful maladies. It is not so long since when we were infested with yellow fever and the epidemics of cholera from 1833 to 1866, when all the excrements of the natural emunctories (defecation, micturition), sewers, garbage and cesspools were on the surface of the earth, and under our very abode. Our greatest triumph in mastering these epidemics at that time was by sewerage, cleanliness and speedy disposition of all excreta and cholera bacilli, conjoined with rigid enforcement of sanitary laws and isolation of our subjects. We have only partially perfected these essentials by which we are to nullify contagion. Go into the slums and dark alleys of our cities and you will find filth and rotteness enough to infect and contaminate the entire state. The cholera bacillus, which was discovered by Koch, who later also discovered the tubercle bacillus, receded from place to place, along the beaten paths of travel, as rapidly as the means of human communication rendered it possible, while the host of tubercle bacilli is found in the intricacies of all substances, hence in dealing with them we have a much more formidable foe to conquer. For years, in fact, ever since the inception of tuberculosis, the tuberculous patients have been privileged the full authority and communication of the entire circumference of the globe. Is there any reason why to-day, we should allow this great white

plague to infest the breath and food of all living creatures in all the walks of life?

The tuberculosis germs lie beneath your feet; they fill the air that is wafted into your face; water and food are conveyers of this insidious foe; the fly transmits it from place to place and from home to home; by the mosquito and by vaccination it is probable that every pure and healthy child's stream of life blood is inoculated with tubercle bacilli, indeed there are so few exceptions where the germs of this terrible disease are not found, that one must take a very broad view of the dangerous situation in order to feel safe to dwell upon this grand old earth at all. So artful, so crafty the onset and so protracted the development, the individual remains unsuspecting of its presence, and still a single person with consumption may cause thousands to fall victims to the disease. The universality of the germs and the susceptibility to the disease demands strict enforcement, of isolation, of sanitary measures, and the early detection of its incipency or pre-tubercular stage. The unsuspecting patient is scattering the seed by expectorating promiscuously on the streets, in cars, even on the floors and carpets of his home. He may cough in your food, in the air you breathe; he infects the drinking vessels, the books and newspapers you read, and in a multitudinous manner spreads the germs among the people, entirely innocent of the great calamity he is producing. In my judgment, isolation, sanitation and fumigation, the annihilation of the fly and mosquito, and a vigilant supervision of the methods of vaccination would very much improve, if not wholly, render the situation comparatively healthy.

We must surmount the difficulties that we know are sure to arise in enforcing tuberculous people to respect the rights of the healthy. The public must be informed as to the contagious nature of the disease, their assistance solicited in perfecting a system of managing this intractable foe that they may become strenuous advocates of the aforementioned methods which will protect the rights of others. It must be educated along this line and taught the proper interrelation of the afflicted and the unafflicted. This can best be performed by the family physician, who is prompt and ethical. It may or may not precede legislation to be made serviceable, but in order that any methods may be of full value to the community, they must take in the early detection of the disease and in our endeavor to detect the pre-tubercular stage, it would be well to study the causative factors, the inoculative methods of the mosquito, vaccination and possibly the exposure of open wounds and surgical operations to the ever-present and floating tubercle bacilli. When Simon, Sanderson, Waldenburg and others attempted to prove that any substance introduced into the circulation by inoculation would produce tubercle, which fallacy was proven later; the real truth was that the person became accidentally inoculated with tubercle bacilli by mechanical means and by the other particle introduced, and thus there was accidentally ushered in, the specific micro-organisms of the disease, hence we should be watchful of what we are inoculating into the circulation, particularly lest we make some egregious mistakes and support and sanction some hazardous practices.

There is no question but that flies, mosquitoes, and I dare say, vaccination, are methods by which the tubercle bacilli are transmitted and inoculated into the beasts as well as into the human family. These usitative

*Read before the American Anti-Tuberculosis League April 17th, 1905.

and natural courses of sowing the specific virus of tuberculosis should be very carefully studied and experimentally investigated. Much good has been achieved in the malarial and yellow fever districts by the annihilation of these pests and vermin, conjoined with as Utopian a sanitary régime as possible. The fly transmits typhoid fever and other contagion; the mosquito not only does this but inoculates us with the specific poison of yellow fever, malaria, etc. Therefore, is it not possible and probable that we are inoculated with tubercle bacilli by these insects and the process of careless vaccination? The work that has already been done deserves the highest commendation and inestimable good has resulted.

When we perfect a state of cleanliness, we will master disease, but at present we are devoid of the common rules of hygiene. The sanitary measures are entirely neglected in regard to streets, sidewalks, gutters, public conveyances, buildings, rugs, carpets, etc., although tubercle bacilli find no perfect medium for existence and propagation exterior to the body, and well it is so, else we would all have fallen victims years ago and perished. They do, however, live and flourish in nearly all mediums, and we must reach them, for the real test of any treatment is not the immediate but the ultimate results; but thus far we have failed in this. In our crusade against tuberculosis, our most important point is sanitation, likewise all the measures that are recognized as meritorious in controlling tuberculosis should be utilized properly. We have not yet arrived at and given due consideration to that all-important feature in the management of disease—prevention—which should be the prevailing idea. Nothing should be too small to escape our vigilance, too great to surmount. Less time should be devoted to the care of the sick and more attention called to the destruction of the seed and the protection of the soil suitable for its growth. This is the solution of the greater problems. However, it is never too late to mend, hence, laws should be brought into force to mitigate the widespread suffering of the people of our country due, largely, to this promiscuous scattering of the seed in fertile soil.

It is stated that one in every seven you meet on the streets of Washington die of this disease, and that nearly every person in that city has consumption in some form. It is also stated that Washington has the greatest percentage of death-rate of any city in the United States. The condition is certainly alarming, but we have been almost as silent as the dead in this awful state of affairs in the true meaning of the term, allowing this enemy to creep into the flesh of probably one-fourth of the population. Laws should be enacted by each State Board of Health, with an ample amount of appropriation, for the most kind and tender care of the afflicted. It is the legitimate function of each Board of Health to properly prepare a bill to be presented before the General Assembly to be enacted into law, to be carried into effect by the officers of the law, and the administration of this law should be confided to the Boards of Health to bring a halt to this dread malady and common menace to the life of our citizens.

We should take great care that we work no hardships upon the already afflicted, but, on the contrary, be well-equipped with funds and means to add to their comfort, health and happiness from the very incipency of the disorder, first, making the promise, then, fulfilling it, absolutely without cost to the sufferer, for

the majority of consumptive patients are indigent. I would even go so far as to say, luxurious attention and environment should be afforded them. Care, food, medical attention, drugs, clothes, entertainments, etc., should be absolutely free. This, I suggest as a practicable compensation to the sufferer for any deprivations he may be forced to endure for the protection of the general health or the community in which he resides.

A person suffering with this disease is very peculiar, as all physicians are aware. It is death to some to remove them from their homes and friends without previously providing similar or compensatory environment. The home and circle of friends with their infinite care and kindness is a great help to them. These patients are eccentric, hypersensitive and exceptionally prone to the slightest affront. They should be rightfully pitied and shown the acme of love, sympathy and devotion. Consumptives are the dire enemy of the healthy individual, but they are irresponsible for their deplorable condition, therefore, we should never forget our respect and devotion to those thus afflicted, hence, as I have before mentioned, whatever methods we decide upon, let them be as fully for the comfort and happiness of the consumptive as for the pure and healthy. When a physician discovers a patient suffering with the majority of symptoms that are conceded by the profession to be tubercular evidence, with which we are all familiar, the case should be reported by the attending physician to the Board of Health, as all other contagious diseases now are, and the apartments of the afflicted person immediately fumigated. Indeed, every home, vehicle and public conveyance in the world should withstand a process of disinfection and fumigation once a year, regardless of the existence of disease of any nature, and all consumptives should be isolated and cared for by the commonwealth. All suspects should be summoned before an investigating board consisting of twelve physicians who should be empowered to make necessary enquiry and properly advise them. The board of examiners should consist of a neurologist, a dermatologist, bacteriologist, ophthalmologist, microscopist, surgeon, an expert in chest diseases and five general practitioners. There should be urgent advice against the construction of flats with dark and crowded apartments; every dwelling should be light and airy. These in themselves would not prevent the contraction of the disease, but would, like other means I have mentioned, be an aid in the right direction. Many will say that such rigid management is impracticable, but necessity is the mother of invention, and such measures are to-day a necessity, and we must not dally with the insidious foe.

As far as I can truthfully learn, and my experience with this complaint teaches me, that we have no specific. Drugs are a great aid, an indispensable ally. Many of the vaunted cures I have found helpful, but the early detection of the pre-tubercular condition cannot be too strongly urged and encouraged, for this is the solution of the eradication of the disease.

The treatment is varied, dry air, sunshine, rest, pure water and a multiplicity of medicaments should be utilized when conditions suggest their usefulness. Any measures that will increase the resisting powers of the individual are requisite in the treatment; also light occupation, freedom from care, amusement, physical and mental. I have found the hypophosphites of inestimable value. Loving friends are a useful and stimulating factor in sustaining these physical weaklings, men-

tally. All conditions contrary to light, warmth and dryness are pre-eminently conducive to tuberculosis, while the opposite conditions, being nature's antiseptics, are helpful and tend to destroy the tubercle bacilli. The food should be most nutritious, the use of eggs, pure milk and all varieties of nuts, should be compulsory, when they agree.

It would be utterly impossible to go into detail in one paper on this all-important subject, and I have been obliged to omit much of importance and great utility. In my judgment, we should take active steps at once to perfect the laws which should control this great subject. We must also destroy the bacillus as it issues from the body, in the hope that we may eventually free ourselves from this fatal scourge.

"Attempt the end and never stop to doubt,
Nothing's so hard, but search will find it out."

THE PRESENT STATUS OF YELLOW FEVER.

BY GEO. R. REYNOLDS, M.D.

PART I.

THREE years ago Dr. Wyman published the views of the government on the subject of yellow fever; they were as follows:

"SIR: I have to invite your attention to the subject of yellow fever, and to discussions which have been published in the medical journals and in the daily press during the past few months regarding its transmission. The subject is one with which the United States Marine-Hospital Service, through legal responsibility, has been intimately associated since its reorganization in 1871, the publications of this Service being the chief residuary of the statistics and other facts pertaining to this disease. The annual reports are largely devoted to this subject. In 1889 a volume was published entitled 'Yellow Fever, Its Nature, Diagnosis, Treatment, and Prophylaxis, and Quarantine Regulations Relating Thereto,' consisting of contributions by medical officers intimately acquainted with the disease, either by scientific or clinical work. A volume was published in the same year containing a report of a commission of medical officers detailed by authority of the President to investigate the cause of yellow fever. The Service, through its national quarantine stations and cooperation with State and local stations, has many times prevented the introduction and, by its detention camps, the spread of the disease."

"Within the last year a medical commission of the United States Army, operating in Cuba, has made a report, showing that the mosquito conveys yellow fever and declaring that this is the only method by which the disease is conveyed to man and that it is a particular species of mosquito only which thus transmits it. In their conclusions, it is stated that the cause of the disease is unknown. Based upon their findings, demands have already been made upon the Bureau for certain modifications of the quarantine regulations, which, for the present season, the Bureau, with its deemed justifiable conservatism, has declined to make, but the matter will undoubtedly again be urged during the next season and it is incumbent upon the Bureau to have definite scientific grounds upon which either to modify its present regulations or to maintain them. On the one hand, the Bureau has no desire to perform unnecessary labor, nor to impose unnecessary restrictions upon commerce, its traditional policy being to maintain a scien-

tific quarantine and to impose no restraints upon travel or commerce not demanded in the light of science and experience. On the other hand, the Bureau cannot, in the interest of commerce, remove time-honored measures without definite justification therefor.

"Since the announcement of the findings of the above-mentioned army commission, the Service has continued the prosecution of its inquiries concerning this disease with special reference to the findings of this commission. This has been done not only in the hygienic laboratory, but by special orders transmitted to the officers assigned in April to the several fruit ports of Central America, to the medical officers in Cuba and Porto Rico and to those at the southern quarantine stations of the United States. A number of reports have been received and published in the Public Health Reports containing facts of interest on the subject. To estimate these facts at their full value, to collect additional facts, and to give direction to future investigation, it has become necessary to devise a plan for a complete study of the subject in all its phases. This duty is incumbent on the United States Marine-Hospital Service by reason of the quarantine law of 1893, which provides for making the necessary quarantine regulations against the disease."

"Section 4 of this law also requires:

"That the 'Secretary of the Treasury shall also obtain, through all sources accessible, including State and municipal sanitary authorities throughout the United States, weekly reports of the sanitary condition of ports and places within the United States, and shall prepare, publish, and transmit to collectors of customs and to State and municipal health officers and other sanitarians weekly abstracts of the consular sanitary reports and other pertinent information received by him, and shall also, as far as he may be able, by means of the voluntary cooperation of State and municipal authorities, of public associations, and private persons, procure information relating to the climatic and other conditions affecting the public health.'"

"That public health work of this character is incumbent upon the Service is further shown by the act of Congress approved March 6, 1901, in which an appropriation is made for a new building for hygienic laboratory, United States Marine-Hospital Service, the function of this laboratory, as stated in the law, being for the investigation under the Surgeon General of contagious diseases and matters relating to the public health."

"Moreover, Congress has provided a fund for the prevention of epidemic diseases which may be applied to this investigation, as there is no epidemic disease of greater importance as affecting the United States than this one."

"In view of the foregoing facts, I have prepared and submit herewith a plan for the organization of a yellow fever institute in the United States Marine-Hospital Service, whose object will be to collect all facts concerning yellow fever, to designate the specific lines of investigation to be made, and to make the investigations. The members of this institution are to be the medical officers of the United States Marine-Hospital Service, and others specially qualified. They will be assigned for duty to one of four sections, each section having a special list of topics for consideration. Each of the four sections will be under the direction of one of the medical officers on duty in this bureau and said bureau officers, with the director of the hygienic laboratory, the Surgeon General, and a secretary, will constitute an

executive board, which is to have general oversight of all the investigations. This furnishes a convenient method of administration, as the machinery of the institute will be readily operated in the bureau, while the actual work will be carried on by members at various places.

"At present, the Service work on yellow fever is being conducted by a limited number of officers working on more or less independent lines. The institute provides for observation and experiment by a large number of workers in accordance with a general system—in fact, organizing and co-ordinating the work that has been going on and which is to be done."

"The stimulus to the members will be not only the scientific interest in the subject, but the publication of their contributions in the shape of bulletins as often as it seems advisable to the board; and with the Department facilities and necessary funds for incidental expenses, it is believed that the organization will meet with a degree of success warranting its existence."

Before the American Health Association, Gorgas, the same year stated that he believed that with the total extermination of the mosquito there would be no yellow fever; for the destruction of the new-born *stegomyia fasciata*, oil has been placed on the surface of standing water, with good results, while the yellow fever patients in the hospitals are protected by mosquito-bars, thus isolating them from this insect-contamination. Formento, while supporting the theory that the mosquito does carry yellow fever, does not think that that was the only method of infection. It would be very fortunate if it were and would greatly simplify the problem; we should not all at once throw away as worthless the experiments of centuries. In the discussion he cited several cases of infection by fomites.

Dr. Wasdin asked whether we should go backward and displace all of our known methods of quarantine; New Orleans has been kept absolutely free from yellow fever invasion by methods to prevent that disease other than any attempt to kill mosquitoes. While he believed that the mosquito was the medium of yellow fever infection, he thought there were likewise other media. Rosenau at the same meeting reported a case of a mosquito living thirteen days in a trunk en route from Neuviets to New York (which fact was subsequently combated by Dr. Reed on the basis of "False observations"). Dr. Rosenau had, by repeated experiments, kept mosquitoes alive in a trunk, in the proximity of moisture, for a period of ten days, and said that water was not necessary to their life, merely moisture.

Dr. Reed, in reply, said that he had the greatest sympathy with Dr. Formento in his belief that yellow fever could be transmitted by fomites, for New Orleans had suffered so severely through its epidemics; he had expected the utmost criticism of his methods in Cuba and if those experiments could not stand this criticism they were not worth much. He had expected all the criticism that had been resented as to his theory of yellow fever infection per *stegomyia fasciata*, and he had left no stone unturned to produce evidences of contagion of yellow fever by fomites, but could not. The last man experimented with slept in a room, with an average temperature of about 82°, which was kept purposely damp and with no sunlight; he had slept for sixty-five nights in this room, in infected garments, with the pillows and sheet wrung out with blood of yellow fever, in which it was demonstrated that the parasite was pres-

ent. The doctor cited the epidemic of 1753, in Philadelphia, to prove that contamination was not by fomites; that when the fires in the house were started and ventilation was obstructed, so there could be no ingress or egress of mosquitoes, the epidemic lessened and gradually became extinct. He believed that this parasite of yellow fever does not belong to the vegetable kingdom, but that it belongs to the order of protozoa or some lower order of the animal kingdom.

Reed and Carroll, of the United States Army, in a paper entitled "Experimental Yellow Fever," tried to produce yellow fever in human beings (1) by the bites of *Culex fasciata* which had previously bitten a yellow fever patient; (2) by injecting the blood from a yellow fever patient into a non-immune subject; (3) and by the exposure of individuals to fomites. The authors succeeded in infecting four out of five patients by injections of human blood. These cases confirm the presence of the parasite in the blood of the general circulation of patients suffering from the disease and confirm the possibility of its transference by the bite of the mosquito; inoculation of blood from a case of yellow fever into suitable culture media produced no growth, thus depriving the bacillus *icteroides* of its position as the cause of yellow fever. The paper reports four additional cases of inoculation of yellow fever by mosquito bites; one of the patients was bitten fifty-seven days after the insects had been fed on a yellow fever patient, and contracted severe yellow fever. The parasite is present in the general circulation of the infected individual both before and after the intermission of the fever. All mosquitoes do not acquire the parasite on biting a yellow fever patient because the organism may not be present in the capillary circulation. The average period of incubation of yellow fever in sixteen cases was eighty-seven and one-third hours, or three days and a few hours. The period of incubation in one case was seven days. The cases may be severe, mild or very mild. Mild cases are difficult to diagnose in the absence of complete data, but such cases may serve as a focus of infection through the bites of mosquitoes. All the cases in the series presented albuminuria with one exception. George M. Sternberg, of the United States Army, said that this demonstration of the infection of non-immune patients by the bite of the mosquito makes clear many apparently contradictory facts concerning the etiology of the disease; it explains the occurrence of yellow fever in stevedores when a ship appeared to have no yellow fever on board. It explains why sulphur fumigation disinfected these ships, also how the infection traveled from a ship anchored in the harbor to the neighboring land without communication with the shore. He considers the demonstration that the infectious agent is in the blood, and that it may be conveyed to a susceptible individual by the mosquito bite.

Taking another form of mosquito Daniels believes that *Anopheles funestus* is the chief agent in the distribution of malaria in East and Central Africa, for after feeding fifty-seven specimens of *Anopheles* on a patient suffering from malaria whose blood contained crescents, twenty-seven, or 47.5 per cent., were found to be infected; these fifty-seven mosquitoes had fed 129 times on the patient and out of the 129 feedings, infection of the mosquito resulted in forty-six instances, or thirty-five per cent. Man appears to be the only intermediate host of the malaria parasites; from June, 1899, the author made observations on the proportion of chil-

dren of different ages with splenic enlargement, the absence of this condition in the adults having been previously noted. Out of 851 children under fifteen years old examined, 216 had enlarged spleens. A classification of these observations into a group under two years of age, a group between two and four years, and a group from four to fifteen years, shows an earlier incidence and an earlier decrease in the proportion with enlarged spleens in the more malarious districts; and as chronic enlargement of the spleen does not always follow even repeated neglected infections, it also indicates a very high degree of prevalence of malaria in the natives in early life. The causation of enlarged spleen as a result of malaria is not well understood, and requires further investigation. This effect of malaria is in part dependent on race; no preventive method is or can be of general application to the exclusion of others. A combination of methods strictly in accordance with local conditions promises the best results. The outlook is hopeful, as a reduction in any factor by any one method will increase the effect of any other methods adopted. The greatest difficulty will result from the skepticism with which the subject meets in the tropics. Sufficient regard to the species of anopheles has not yet been paid in describing their habits and breeding places; the very local distribution of some of the species indicates some important differences as yet unknown.

Van der Scheer and van Berlekom report an outbreak of malaria in Middleburg, the principal town in Zeeland, where for thirty years this disease had never occurred. There were two marked peculiarities of this epidemic: (1) It consisted only of cases of tertian fever, and (2) house epidemics were often observed. These houses were reinspected this year with accuracy, and several anopheles were found; it became evident that, as in Italy, anopheles live in stables with rabbits, horses, and other quadrupeds, for within such stables in the neighborhood of the infected houses whole colonies of them were found. The authors tried to infect anopheles by keeping them under a mosquito net, together with a person who suffered from malaria, and whose blood contained not only the so-called febrigenous parasites but also gametocytes, which are destined to undertake sexual functions in the mosquito's stomach and to form vermicules. Their experiments were immediately successful, so that, of twenty-two mosquitoes that had sucked blood containing gametes, one or another stage of development of the parasites was found in the bodies of eighteen.

Marcour reports a grave case of yellow fever which he treated with Sanarelli serum; the case was a noteworthy one as it was the first authentic case on record of a grave type of "typhoid icterus" where a patient had black vomit, and recovered under this treatment, and his conclusion was that this patient would not have recovered under any other method. The first organ which responded to the serum was the kidneys, second, the nervous system, while the irritability of the stomach was quieted considerably. Towards the beginning of convalescence an erythematous eruption appeared first at the points where the serum was first injected, secondly, where the skin is thinnest, and later all over the body. This characteristic eruption was also observed in two other cases of yellow fever treated with the same serum by Dr. Marcour, but owing to the mild type of his other two cases he did not think them of sufficient importance to the medical profession to be reported in detail. After

the reading of his paper in Havana the President of the Section translated it into Spanish to the Cuban, Mexican, and South American physicians present. Marcour concluded by stating that we need to try the serum only in grave cases, since mild cases recover with simpler methods and good, careful nursing. This authority is convinced that the *Culex fasciatus* is the only agent capable of conveying yellow fever.

Doty, writing on the mode of transmission of the infectious agent in yellow fever and its bearing upon quarantine regulations, concludes that the treatment of incoming vessels from ports infected with yellow fever is a very important matter; if they are five or more days in transit, and all on board are found to be well after a careful inspection, the vessel, its passengers, and crew shall be released. If the vessel has been less than five days in transit, all on board who cannot present satisfactory evidence of immunity should be removed and held for observation until the completion of a period of five days from the time of departure from the infected port, and then released only after a careful inspection. When yellow fever is found on incoming vessels, the procedure should differ only so far as it concerns the removal of the patient to a properly constructed hospital. He believes that the disease is not contracted by personal contagion or through the medium of clothing, bedding, cargoes of vessels, etc., and states that we are justified in changing our quarantine regulations to conform to these views.

THE OPERATIVE TREATMENT OF GOITRE.

BY A. M. HALL, M.D.

KOCHER, summing up the results of nine hundred operations for goitre, states that he had met but one case in which cachexia strumipriva had developed, for he always left a part of the thyroid gland intact, sufficient to carry on its functions to a moderate degree. In the case he mentioned in which cachexia was present he had removed only one-half the gland, but later, after the operation, it was found that the remaining half of the gland was atrophied, being restored under thyroid feeding subsequently. In reference to his success in operating, he deducted from the total number of cases thirty cases of malignant disease or such as were associated with difficulties that militated against success. Of the remaining eight hundred and seventy cases, eleven died; in six only was the death due directly to the operation, and of these three were of Graves' disease. In consequence, this authority considers thyroidectomy for the relief of Graves' disease a very dangerous procedure, greatly preferring tying not more than three of the thyroid arteries for the relief of this condition.

Goitres are more common than generally supposed, for example, McKenzie, practicing in and about the town of Larkhall, Scotland, observed goitres large enough to attract attention in 25 per cent. of the population, and slighter cases were seen in a much greater percentage. Almost all of them occurring in the mining and laboring classes. Marsh attributes endemic goitre to infection, supporting this view by stating that the disease occurs within well-defined areas, claiming that it disappears entirely after the introduction of proper drainage, and that the water from certain wells produces goitre, but becomes harmless after being

boiled; unfortunately for this theory, its general endemic appearance in Larkhall cannot be attributed to the water-supply, since it is the same as that of a nearby town in which goitre is unknown.

Lediard reports many cases of goitre occurring in the lake regions of Cumberland and Westmoreland, in England. He states that this region is remarkable for the beauty of its scenery, due to the great number of hills and lakes; the rain-fall is in parts heavier than in any district in England, reaching in places one hundred and forty-three inches a year, and the rivers, though not large, are numerous and frequently in flood at certain seasons of the year, and there is no question to Lediard that to the copious saturation or swamping of the soil, is due the frequent occurrence of goitre. This district is scantily populated, the remarkable fact is apparent that the instances of sudden death from pressure on the trachea are met with here as they do not seem to be found elsewhere. In Lediard's experience, women present themselves for treatment more frequently than males, although this may simply mean that the female sex is ever more alive to the presence of such deformities, but the fatal cases induced by sudden suffocation as the result of the pressure exerted by rapidly growing goitres are not limited to the female sex.

There are many remarkable features in these cases; the painless nature of the disease, uncertain in its growth, calling for attention only by its bulk, manifesting itself in all its dangers only by the sudden manner in which young lives are snatched away at short notice. These facts may be incredible to those whose practices do not lie in a goitre-producing district, but unhappily it is the experience of nearly all practitioners in Cumberland and Westmoreland. To the adult the goitre, aside from its hideous deformity, is of no immediate danger, but to the girl or lad of fourteen, fifteen, sixteen, or even of twenty-five, an enlarging thyroid gland becomes a serious matter; and the explanation is simple from a mechanical point of view, for in the young the rings of the trachea, formed as they are of soft and elastic cartilage, lend themselves in a dangerous manner to outside pressure; surrounded on three sides, as the trachea is, by the thyroid gland, all goitrous enlargements cannot fail to produce an unexplainable and mischievous arrest in the expansion of this air-tube, flatten it when expanded, or cause deviation of the air-tube. With regard to the causes which lead to sudden enlargements of these diseased thyroid glands, there is no explanation offered. An easily compressible trachea is so far compressed that it needs but another straw's weight of added pressure to cause death; it may be that sudden vascular disturbance from an unknown cause furnishes this straw's weight of pressure required in order to suffocate the individual. At any rate, this sudden occlusion of a compressed trachea is so rapidly fatal that the surgeon often is called in too late.

The largest goitres are found in the necks of elderly women; fortunately, in such cases there is no danger to life, for the hardened rings of the trachea are able to hold their own against pressure from without from enlargements of this nature, and let a young person get past twenty-five without dangerous symptoms appearing, and in all probability such symptoms will never appear. Perhaps it would be as well to give one or two examples to illustrate what has been said as to dan-

gerous symptoms arising unexpectedly in young people. Lediard was summoned to the village of Wetheral to perform tracheotomy, on a healthy looking girl of sixteen with a large goitre, whom he found in a dying condition; he made an incision down the neck, thrust aside the halves of the tumor, dug a road to the trachea, and inserted a tube quickly as there was no hemorrhage. He resorted to artificial respiration unsuccessfully, and a girl, who had up to that time been perfectly well and who had not been complaining in any way, thus suddenly died. A bit of the thyroid gland on section showed large spaces filled up with yellow colloid material with intervening septa of fibrous tissue. These and similar cases which could be related are more than sufficient to prove that, associated with goitre in young persons of either sex, grave danger may suddenly appear at any time.

Warned by such disasters, it is well to advise in all cases of goitre in the young, where trachea pressure is evident, early removal of one-half of the gland. Tracheotomy will relieve these cases, doing away apparently with the necessity for severer measures, but it will be found not only very difficult to perform, but practically useless, and useless is the division of the isthmus of the thyroid. Tracheotomy, performed for the relief of the dyspnea or suffocation in goitre on one difficult owing to the enlargement of the gland on one or both sides of the isthmus. The growth of the gland tends to deepen the position of the windpipe apparently, and render the operation troublesome. Moreover the trachea will be found displaced. Deviation to one side or the other is common or even a multiple curved form may be induced by the pressure. The trachea may be flattened laterally, or it may be flattened from before backward. Abandon all attempts of that kind, and relieve spasm or suffocation by liberating the tube of the trachea from adjacent pressure; which may extend for several inches along the tube, and, if present at the point where the trachea disappears behind the sternum, a tracheotomy-tube would not be of use, unless of great length.

Although Lediard reports very pessimistically his experience in goitre in children, yet other authorities have been more favorable in their accounts, for example: Firbas reports three hundred cases of goitre in children; most of them girls. The enlargement of the gland present at birth lessened on a milk diet, but it returned when a mixed diet was given. He gave raw thyroids and tablets of desiccated glands once or twice a week to twenty-seven cases, resulting in a reduction in the size of the gland. There were no intoxication symptoms and the best results came from the use of the raw gland. Shields has reported a case of acute thyroiditis in a baby followed by atrophy of the gland. The child developed into a cretin.

Frequently the enlargement may diminish under iodide of potassium given in almost poisonous doses, and the stridor disappear, but it is hard to distinguish cases which can be safely treated by iodide of potassium and those which should be operated upon without delay. Some persons are unable to tolerate iodide of potassium, and if so, that would form an additional reason for early operation. With regard to morbid condition of the gland found in goitre, it varies much with the length of time it has existed. In an early rapidly-growing gland a large deposit of colloid matter exists, in the spaces between the stroma of the

gland. In older cases, cysts containing a sanguineous and glutinous fluid may be found, associated with colloid deposit. In yet older cases cysts and colloid material may be found, with much fibrous tissue and cretaceous matter.

In recent cases the diseased gland may be found projecting into the bag of a large cyst, into which the entire lobe of the thyroid has been changed, while the isthmus may be the seat of cystic formation or simple enlargement.

The thyroid enlargement may stretch behind the posterior pillar of the fauces and where pressure has been marked the goitre is usually solid. The interior of the gland is by no means vascular, and a lobe may be cut from its fellow or from the isthmus with scissors, without any risk of troublesome hemorrhage. Experience has taught all surgeons to remove one-half the gland of its isthmus only. No one now thinks of removing the whole gland on account of the risk of inducing the general condition known as myxoedema; indeed, as far as removing a possible source of danger is concerned, there is no need to remove the whole gland, for the trachea is liberated if one-half is removed. A good light thrown directly on the neck is needed, a pillow should support the shoulders to protect the cervical region; then make a central incision; the longitudinal veins found beneath the skin can be turned aside with a retractor, and if division of one is unavoidable, it can be tied in two places and cut between the ligatures. Reach the goitre quickly, for the sterno-hyoid and sterno-thyroid muscles may not even be seen, it is important not to cut the capsule of the gland, otherwise hemorrhage commences at once, delaying the operation. Sweep around the tumor with the finger and separate all connection with the loose cellular tissue in the deep as well as superficial portions of the growth; at this stage the goitre can be shelled out through the skin incision. With the forefinger endeavor to hook the inferior thyroid artery, and if found, pass a silk thread round it with an aneurism-needle. Do this also with the superior thyroid artery; but if these arteries have not been found, a careful search must then be made along the deepest part of the attachment of the gland, when, probably close to the trachea, they may be seen. With these vessels out of the way, all risk is at an end. Adhesions to the trachea should be separated with the handle of a scalpel, but they never cause any real trouble; the scissors are also useful in detaching the tumor from the trachea, provided they are used with an exact knowledge of what is going to be cut, but a snip of tissue deep down in the neck may be attended with troublesome hemorrhage. Avoid profound anesthesia, because when the goitre is being drawn out of the neck there is sometimes considerable traction of the trachea, and embarrassment of the breathing is thereby produced. In separating the goitre from the side or front of the windpipe adhesions spreading over an inch or more of the rings of the trachea are found, and it is at that time that the various deformities caused by pressure may be seen. The trachea may be seen curved, wedge-shaped, narrowed, pushed out of place, and even may be difficult to find for a moment, except by the touch of the finger. There can be little doubt, however, that the sudden division of the superior thyroid artery in an unexpected moment may create difficulty and even danger, so endeavor to hook

either this artery with a forefinger, or else to search for it with the naked eye, and to tie it securely before using the scissors. If the breathing is much embarrassed during an operation, there will naturally be much distension of the cervical veins, and if these have been cut hemorrhage will follow; push veins to one side and hold them out of harm's way by retractors. Use the knife as little as possible, for it will be found that goitre may for five-sixths of their surface be cleared with a finger only, and the remaining sixth will consist of deep adhesions to the trachea and blood-vessels; for these use scissors. Make the skin incision of sufficient length to allow of the delivery of the goitre in the manner described, but its size or length is of moment only when the resulting scar is taken into consideration. A scar is left which is very disfiguring upon the neck of a girl, and this has probably induced Kocher to advise a transverse curved incision to avoid disfigurement. The immediate effects of union of the incision will not appear unsatisfactory, but later the stretching of the scar produces a ribbon-like band down the centre of the neck. If the opposite side of the thyroid advances, as it may do, towards the middle line, owing to the space being clear, the scar is liable to be stretched. A curved incision with its convexity towards the sternum might possibly obviate the subsequent disfigurement. With reference to the treatment of the wound, it is as important here as at operations in other parts of the body to leave the wound dry; a sponge may be left in the cavity previously occupied by the goitre, whilst stitches are passed through the skin. With a dry cavity free from oozing, closure without a drainage-tube may be attempted. The most satisfactory union obtained is where no drainage-tube was used; immediate healing was the result, and the patient left the hospital in less than fourteen days. If a drainage-tube is used, it should be left in only for twenty-four or forty-eight hours. Pressure should be exerted on the neck after the operation as far as possible, and the head and neck kept rigid by the dressings and bandages. At first the effects of the removal of a goitre on one side may seem disappointing, for the stridor not only does not disappear, but may be more evident. In a few days, perhaps three or four, the evidence of pressure will disappear entirely. The healing of the wound may be retarded by a collection of serum in the pouch left, and by the subsequent change into pus; the great object then is to dry the wound and apply pressure, if possible without a tube.

Pneumonia is to be dreaded after operation, especially in poorly developed, weakly girls. Prevent chill in conveying the patient to and from the operating-room, and keep the body well covered during the operation; in addition keep the operating-room free from dust, and these precautions should tend to the prevention of pneumonia after such operations.

Twenty minutes to half an hour is the length of time needed to complete the operation. In liberating the goitre with the finger from the surrounding attachments, it may be necessary to seize the thyroid gland with the fingers of the right hand whilst the forefinger of the left is used for the separation. When the separation is nearly completed, it may be needful to introduce three fingers into the wound and pass them behind the goitre in order to deliver the tumor outside the wound. In the patient from whom half a goitre has been removed, at first a disfigured condition of the neck is

evident, on account of the flatness of one side and the swelling on the other side from the half of the tumor remaining. Generally the other half of the goitre diminishes in size slowly but steadily, and the symmetry is soon hardly apparent. In order to avoid any tendency to extra growth it is well to remove all tumor growth from the centre of the neck, and if the isthmus is found enlarged as well on one side, to remove both, because, as has already been pointed out, the removal of one side seems to allow the other half of a goitre to advance towards the middle line.

In exophthalmic goitre, operations have not only been advised but undertaken in order to cure this condition; here the size of the thyroid in these cases is never very great, nor pressure upon the trachea very marked; at the operation there may be no special difficulty, one-half of the goitre can be removed with ease and the amount of hemorrhage inconsiderable and the time occupied should be brief and the patient back in bed in less than half an hour. Vomiting, high fever, suppression of urine, nervous excitement, and much lung disturbance, suggestive of commencing pneumonia followed; in some cases, the patients dying subsequently. The experience of surgeons has been unfavorable in these cases.

In place of operating in these cases, Rockwell, from the treatment of forty-five cases of Basedow's disease—dating from 1876—says that the prognosis in this disease is better than is generally supposed. Fourteen of these cases either fully or approximately recovered, twenty-seven were benefited, some of them in a very great degree, others only slightly, while three were in no way benefited.

Some of these cases that were much benefited relapsed and received further treatment with good results, while others have been lost sight of and their subsequent history is unknown. The electrodes used are of sculptors' clay, enabling him to apply as high as from 20 to 60 milliamperes to the neck. If his results in the treatment of this disease have been exceptionally good, he attributes it to the fact that he has not confined his efforts to the use of drugs and the galvanic current alone, but has in many instances combined with these methods the most thorough and persistent treatment by general faradization. While he considers electricity of more importance than any other remedy, he follows rigid rules in eating and drinking, avoiding all excesses.

In the various phases suggested in the pathology of exophthalmic goitre, Schwerdt proposes the most fantastic theory, suggesting that it arises from enteroptosis, through disturbances of the lymph stream, the goitre develops. The chyle is not carried properly through the thoracic duct, the movements of the diaphragm are less effective, hence the lymph becomes mixed with that in the general circulations and seeks subcutaneous channels; stasis follows, especially in the orbit producing exophthalmos. The thyroid overacts in an endeavor to neutralize the toxic substances absorbed into the system. It is an ingenious theory but unsupported by facts.

15,000 street accidents in London yearly, states the *Standard*; and that city is still only talking of horsed ambulances and an ambulance system. At present the police trundle the wounded in a push cart to the nearest hospital, where they get the first surgical attention.

THE INSANITY OCCURRING IN EPILEPSY.

BY M. E. FITCH, M.D.

THE medico-legal aspect of this form of insanity is most interesting and vital, as epilepsy is a disease common among criminals. It is a delicate problem to decide how far the presence of epilepsy renders its subject irresponsible for crime in the eyes of the law. There are no symptoms which are uniform and there are all degrees of mental impairment in epileptics.

I recall, as I write, a curious case of an intelligent, beautiful girl, who accused a friend of an attempted criminal assault upon her. It created great surprise at the first, but I knew the underlying facts; the girl was an epileptic; I had attended her for years, but as her attacks were nocturnal, this fact was unknown to friends or even to portions of her family. But she was a liar as thorough and artistic as any morphine habitué. For example, she had been given bromides by a previous attending physician, which I had stopped, and she assured us on her word of honor that she was taking no medicine surreptitiously as she had done before; but her mental condition became so poor and depressed that I doubted her word and a thorough search of her bureau drawers discovered a large bottle of bromides, which I learned from the druggist had been repeatedly renewed for months. Her word had been so solemnly given that I resolved on a corresponding deception to demonstrate to her that she did not need the medicine. We refilled the bottle with a mixture of salt, ammonia and various harmless constituents, which she took regularly, but as she supposed, surreptitiously. Later, when we told her what we had done, she was not upset as a normal person would have been by being detected in a falsehood, but she laughed gaily as if she had done a clever thing. Her word was absolutely unreliable and yet had she gone on the witness stand against any man, her shrewdness, her beauty and apparent intelligence would have sent him to jail very quickly, yet her own story of this alleged assault was curious: She had dined with the man in a public restaurant an hour after she stated she had repulsed him and remained on good terms with him until she wished to ingratiate herself with some people whom she knew were unfriendly to him. They had clutched at her story and by their sympathetic treatment and suggestion, her story grew and grew and yet, for she was married by this time, her own husband disbelieved her story, as he had grown to know her character for veracity. Yet I realized that this woman seems to believe her tales, it is impossible to phase her; there is a curious twist in her mental make-up and the question arises—has she crossed the borderline that surrounds real insanity?

Some patients show practically no defects except immediately before and after their seizure, and I believe such should be held for crimes committed in lucid intervals, for we must not assume because a patient is epileptic and has at times mental disturbance, that he is necessarily irresponsible for his acts in the intervals between attacks, yet the proximity of a wrong act to a seizure suggests mental impairment at the time of commitment, but the mental disturbance following a fit is different in different cases; for example, a man who is perfectly sane a week after a fit can be irresponsible for an act committed a day after a fit. Suicidal and homicidal acts are committed subsequent to epileptic seizures, as the result of automatism or an uncontrollable impulse

without motive, or during the fury of epileptic mania or instigated by the promptings of a deluded mind; their impulsive acts are like explosions, and, being dictated by a leading idea, are irresistible. Often epileptics realize this, and will ask to be put under restraint, so as to prevent the committing of acts which they feel powerless to resist; there is this feature about the acts of epileptics, an impulsive act has not only great suddenness, but generally an entire absence of motive. If crime seems due to deluded-mind, we may find that the delusion existed prior to the epileptic attack, and was acted upon after the fit and before consciousness was fully regained. Lewis, an excellent authority on this subject, says: "In deciding the question of responsibility we should ask ourselves:

"Was the act characterized by complete automatism?

"Was the patient sufficiently conscious to recognize its nature?

"Was he sufficiently conscious to recognize its criminal nature—that is, the distinction between right and wrong and the probable issue?

"Or, if the latter was the case, was it the outcome of insane delusion or perpetrated as a purely uncontrollable impulse?"

Epilepsy may be feigned, even to the extent of actually inflicting personal injury by falling in some public place; in time, the fraud would be detected, for the phenomena of the seizure cannot all be assumed, even by the most expert actor, for the pallid face, the dilated pupil, the clonic spasms, cannot be simulated. Yet if a criminal, possibly accustomed to associating with genuine epileptics, assumes the character of epileptic insanity, it is difficult to detect, for epileptics are very sly and cunning, and have been known to obtain some privilege or indulgence, to simulate a condition of mind not actually present; watchful, intelligent supervision, extending over a considerable period of time, is the only means of deciding in exceptional cases.

Epileptic insanity is that form of mental derangement in the clinical history, in the manner of invasion, and in the further development which is associated with the epileptic neurosis; only a few epileptics become insane, and the mental derangements of these may assume the form of maniacal excitement, of mental depression or enfeeblement or dementia, of delusion, perversion or perversions of the moral make-up. Puberty in the male and the establishment of menstruation in the female between thirteen and sixteen years of age are especially dangerous in the lives of patients with a neurotic taint, yet only an hereditary taint of epilepsy or insanity can be traced in one-third of the cases, and about one epileptic in ten is liable to be a sufferer from epileptic mania. Outside of hereditary and traumatic causes, fright in persons under ten years of age and excessive mental worry in those who are older are the commonest exciting causes; to trace the cause of the first fit is generally impossible. The public have a dread of acknowledging any predisposition either to epilepsy or insanity, and regard an ancestral weakness in either of these directions as akin to disgrace, so that cases beginning in infancy usually are assigned to the irritation of teething, and of late years eye-strain in both children and adults has come to the front as an exciting reflex cause. Epilepsy has been generally classed among the functional nervous diseases, but if the pathological investigations of Bevan Lewis are correct, there is an anatomical lesion; thus far gross changes in the brain and

its membranes are known to be causes of epilepsy, but Lewis, by microscopic investigations, finds evidence of degeneration in certain of the brain-cells of the cortex. He explains this as follows: "The cells of the second layer, characterized by the large size of their nuclei, and to which he assigns special inhibitory powers, undergo changes and their nuclei are removed by fatty degeneration; to this the term vacuolation is applied. The ganglion-cells of the fourth layer, regarded as especially motor in function, are also degenerated, readily parting with their nerve-force, of which they appear to be reservoirs, and which, owing to the loss of control from the changes in the cells of the second layer, is delivered as a 'sudden, rapid, excessive, and occasional discharge,' constituting the phenomena of the disease; epilepsy being the result of such an explosion of nerve-force, occurring in the cells of the cortex of the brain; For a long time the theory advanced was that known as the vaso-motor, by which was meant that the loss of consciousness and the convulsions of epilepsy were the result of vaso-motor excitement causing spasms of the cerebral arteries and sudden anemia of the brain." Cerebral anemia can have such accompaniments, but we do not think that the assertion that the brain is anemic when a convulsion occurs has been proved, for pallor of the face is no more indicative of this condition than suffusion the opposite state. An epileptic seizure is the result of a sudden, rapid, and excessive nervous discharge, and the investigations of Victor Horsley limit this discharge to the cells of the cortex, and show that a condition of congestion, not anemia, exists. Among the insane this discharge is attended with an expenditure of force out of all proportion to the normal physiological outlay, inconsistent with the continued healthy brain activity. It may occur in any part of the brain; may begin in one and spread to other regions, and so may give an almost endless variety of motor or sensory effects. In petit mal, motor effects are less evident than sensory; hence this variety of the disease is more dangerous to mental stability than the grand mal and is more apt to be followed by insanity. Grand mal in epileptic insanity is usually very severe and the convulsions are terrible to witness. Here is a typical clear-cut case of epileptic insanity: A woman, thirty years old, has been an inmate of an asylum for four years; subject to violent outbreaks of temper, during which she committed several serious assaults, of which she afterward said she had no recollection. With a family history of insanity, her mental development is poor, and she grows duller and more stupid. Shortly after her arrival, she dropped her work, ceased walking, and her face was pale, the muscles of the left side twitched, her pupils dilated; then the face flushed, her hands were raised, and before she could be checked she nearly succeeded in removing her clothing. In a few seconds she started forwards, her pupils contracted to normal size, she drew a long breath, looked around in a startled, surprised way, regained possession of her knitting, and recommenced work. The whole attack scarcely lasted over a few seconds. When spoken to regarding her acts she denied having committed them. This was a case of petit mal, but did not continue as such; for a few days afterwards she had a typical attack of grand mal, and her seizures have continued to the present time.

In another case, a man, aged forty, has attacks of grand mal occurring generally at night, or towards

morning; a series of epileptic fits is succeeded by a maniacal condition lasting from a week to ten days, when he is noisy, abusive and very violent; has no recollection of what he has done when he gets better. He is a strong, robust man, a religious bigot, and, even when comparatively well, a complaining, faultfinding patient; the usual phenomena observed in ordinary epilepsy are present in this patient. First the cry, which varies from a moan to a shriek, then the fall, with tonic spasm and cessation of respiration, succeeded in a few seconds by clonic spasms, which begin as tremors or twitchings and rapidly pass into violent jerks, champing of the jaws, escape of froth, often bloody, from the lips, and an involuntarily passage of urine, more rarely of feces; then a gradual restoration of normal respiration, a lessening of the jerks, and, when, they cease, a look of vague dread in the face, a feeble effort to get up, ending in the patient's falling back and going to sleep for a varied length of time. The face is usually bathed in sweat, and frequently this is strongly odorous. After the sleep the patient may appear merely stupid, or go into a state of automatism or of mania of variable duration, or resume the ordinary condition which existed before the seizure. There is apt to be a periodicity in the occurrence of the fits. The number of fits occurring during a period varies from two to three to many more. In some cases also the "status epilepticus" may set in. In it the convulsions recur with no interval of consciousness, the temperature rises as high as 106° or 107° F., evidences of pulmonary complication appear, and the patient is apt to die. One case has been reported where there were three hundred and sixty-five fits in twenty-four hours. They were less severe, till finally they seemed more of the nature of spasms than pronounced convulsions, not always followed by acts of violence. In some cases they seem actually to result in calming the individual, clearing the mind by a nerve-storm as we see a thunder-storm clear the atmosphere on a murky summer day. Attendants learn this, and will tell you, in speaking of some patient who is specially irritable, "Oh, he is going to have fits, and will be all right after that." A distinct aura cannot often be discovered; the mental condition may prevent them appreciating or explaining such sensation. The premonitory signs occur frequently as peculiar sensations in the head, discomfort or actual pain, or in the digestive tract a feeling of fulness or an attack of diarrhea. Marked change of ordinary disposition is frequently seen; in rare cases it takes the form of hilarity, excessive talkativeness, or unprovoked laughter, or there may be irritability, moroseness, attacks of unprovoked violence upon any one within reach, complaints of ill treatment. One patient states that just before having a fit he feels his stomach distend, that the wind passes to his brain, and he remembers no more. A woman had a visual aura; seeing a light over her left shoulder. When first seen it was not larger than her fist. It approached rapidly, growing larger, and finally a figure of a woman emerged from it, who struck her on the head and she became unconscious. These people generally exaggerate their pains and aches, giving rise to a marked condition of hypochondriasis; every little symptom of physical discomfort is enlarged. No doubt they do have some of the ills of which they complain, but it is their mental state which causes them to regard these trivial signs as serious symptoms. Insane epileptics are inclined to steal; these

patients will take anything they can lay hands on, and even strip fellow-patients of various articles of clothing; there is a propensity to lie, as I have written, taking the form of simply denying their own acts, or of making false charges of various kinds against attendants or fellow-patients. They need not knowingly lie, but they imagine things which have never occurred, or they misconstrue those that have, and in either case draw wrong conclusions. The acts committed by epileptics while in the unconscious stage of epilepsy, or the automatic condition which succeeds it are of great importance from a medico-legal standpoint. It is well known that patients may walk about the wards, avoiding obstacles, picking up and secreting articles, and yet perfectly unconscious of what they are doing, and then falling in a convulsion, and at times an amount of apparent premeditation exists which makes it difficult to believe that the act or acts are involuntary or not deliberately planned. The epileptic is very sly, and often keenly alive to the fact that if charity covers a multitude of sins, insanity covers them all, as a lunatic of this class once said. The automatic acts after a convulsion vary greatly as regards their variety and harmlessness. They are a very dangerous feature in the disease, and some of the most diabolical crimes have been committed by epileptics in this state—such crimes, of course, being far more apt to occur outside than inside the walls of a hospital. It has been noticed, too, that the act or acts, the ideas, delusioned or otherwise, prevailing at the pre-epileptic stage are likely to become operative in the post-epileptic automatism. Even words and expressions used immediately preceding a seizure are repeated immediately after; in observing the symptoms in epileptic insanity, we must guard against allowing the things which are seen to distract our minds from the careful study of underlying conditions. A characteristic of the disease in lunatics is the brutal nature of the discharge of nerve-force, resulting in violent motor disturbance.

While motor convulsions are objective signs, involuntary movements or convulsions are also plainly visible, but it is not so with the sensory effects of a nerve-discharge. Does this not paralyze the higher, restraining mental functions, and allow the substratum of brutality to take possession of the man? No matter how premeditated a wrong act appears, it is probably just as involuntary and as much beyond the control of the patient, as are the convulsions.

Another interesting phase of epileptic insanity is the inter-paroxysmal states; the mental condition after the ending of a series of seizures and before the beginning of the premonitory symptoms of another series varies greatly, for some few patients recover what may be called a perfectly normal condition of mind, in which no intellectual or emotional change can be detected, and they are quite capable of correctly performing their ordinary work; a stranger seeing such a case at this time would wonder why it was in an asylum, but because of their instability, because there are periods in their lives when at large would mean danger to themselves and others, it is best to confine them. There are patients who recover a degree of their former mental vigor, but who continue to harbor delusions, or whose emotional sphere is never evenly balanced. Another class, comprising the most objectionable and the most dangerous lunatics, exhibit throughout these intervals strong intellectual pervers-

sion. Their passions are always rife, and upon the least provocation they are guilty of dreadful acts.

In epileptic dementes there appears to be nothing left of the higher nature, their only desire in life is to gratify the lowest and most brutal passions; the most repulsive people with whom we come in contact. There appears to be no rule that can be laid down as to what the effect of epilepsy will be upon the intellectual life.

The prognosis of epileptic insanity is poor; such cases rarely recover. In speaking of prognosis, we must bear in mind that we refer to the chance of recovery from the epilepsy and not necessarily to the duration of life, for epileptics are frequently long-lived, especially if they are so placed that the danger of accidental death is reduced to a minimum. Barring accidents with great care, life is frequently prolonged to a ripe old age. In treatment, the object should be to lessen the number of fits, to control the violent symptoms, to maintain the general health, and to guard against accident; the bromides are the remedies from which we have the best results in the first indication; given twice a day, in doses from twenty-five to forty grains in plenty of water, bromide of potassium is the best treatment. Being a drug which is slowly eliminated, it does not rapidly produce its effects, so combine it with tincture of digitalis or liquor arsenicalis when the tendency to produce acne is very decided, and try the combination of antipyrin and ammonium bromide in certain cases. The coal-tar series—phenacetin, antipyrin, or acetanilid—have not acted so well. For the status epilepticus, chloral in large doses is useful, and morphine sulphate, grain one-third, by the skin acts well. For controlling the violence, seclusion, with hyoscine hydrobromate, grain 1/120, is the best treatment. The greatest good of the greatest number must be studied, and an impulsive insane epileptic is a danger to friend and foe. Sometimes tincture of cannabis indica and bromide of potassium act well as calmatives. Epileptics are frequently large eaters, reduce their diet, especially in the matter of animal food; this is very important. An occasional purge of pulverized jalap and calomel does good; milder aperients should be used to overcome constipation. Fresh-air exercise is very desirable and should be insisted upon, such as employment in the garden or field. At night, if in an asylum, epileptics should sleep in a ward with a special night nurse to prevent suffocation during a fit, report the number of fits and generally look for and guard against accidental or intentional harm.

Vegetative rhinitis is described by R. Lulle (*Revue Hebdomadaire de Laryngologie, etc.*) as a chronic inflammation of the nasal mucous membrane, to be differentiated from primary lupus and chronic tuberculosis of the nose. It is characterized by a secretion of thick mucous, without crusts, ulcerations, ozena or epistaxis. There is nasal voice. The nasal fossæ show small indolent nodosities, which cause the surface of the mucous membrane to project and assume the form of yellowish granulations the size of a hemp grain. The microscope reveals firm connective tissue with leucocytes of granular aspect; there are no epitheloid or giant cells. The treatment is local—ablation or curettage (anesthesia), followed by lactic acid, with which the surface is touched, to prevent recurrence.

HYPNOTISM, HYSTERIA AND PARANOIA.

BY WM. WORMLEY, M.D., PHILADELPHIA.

THERE are two great classes of medical conditions which are conspicuous in the public press: paranoiacs and people suffering from hysteria, frequently simulating paranoia in its character. These are the people who live on the borderland of crime; whose doings are apt to attract the attention of the police, or, if no worse, excite the surprise or pity of their friends.

Paranoiacs are adaptable people; in the periods of religious excitements, they are Messiahs, Elijahs, Virgin Marys and Jezebels. When political agitations arouse the land, they become kings, emperors, presidents and generals with equal facility. When great inventions startle the land, such as the recent introduction of electricity, they became inventors or are persecuted by various electrical contrivances. In fact, whatever is the topic of the time, the paranoiacs in the slang of the day are "it." Undoubtedly, they have in their time swayed nations, built or destroyed empires, saved or hanged statesmen. The border line between these patients and the true hysterical type is often very narrow and hard to define. An hysterical patient may have quite fixed delusions or even hallucinations, attacks of convulsions and such peculiar states as narcolepsy and catalepsy.

It is in these two latter classes that the professional hypnotist looks for his best subjects. Here comes in the medico-legal question agitated from time to time by our yellow journals as to whether an innocent person may be made to commit a crime through the medium of hypnotism. Laboratory tests in this particular are not conclusive and actual proof is curiously wanting, yet when we realize what painful, apparently impossible feats a hypnotized subject can be made to do, it is hard to decide. Why should not an exceptionally susceptible subject be forced to commit an act which he would not perform in his normal state of mind? There is now in Philadelphia criminal courts a case of this sort where this is to be the defense; a boy fifteen years of age was caught stealing from his father large amounts of material which he gave to a comparatively unknown stranger. He claims that an unknown impulse forced him to do this and it has been proved that the boy received no especial benefit from his stealing, while there was no necessity for it on his part, his father being well-to-do, kind and careful of the boy's wants. The attorney for the defense has put in the plea of hypnotism and the case will be tried this fall.

No final answer can be given at this time to the question as to the nature of hypnotism. Undoubtedly, there are two schools: French, of course, Salpêtrière and Nancy, which differ in their belief. The founder of the Paris school was the late Professor Charcot, whose experiments in hypnotism followed naturally his important study of hysteria; he concluded that hypnotism was a pathological entity, a disease, and closely related to hysteria; in the perfect subjects he made three phases of the hypnotic state, lethargy, catalepsy, and somnambulism, each distinct from the other, characterized by certain physical and psychic conditions, but easily changeable the one into the other; believing that all forms and degrees of this state are simply variations or varieties of this type, he called it "grand hypnotism," to correspond to the most severe typical form of hysteria. The founder of the school of Nancy, Dr. Leebeault, on the other hand, was a country practitioner

near that city becoming interested in hypnotism; some thirty years ago he removed to Nancy, and succeeded in interesting Bernheim, then professor of medicine, Beaunis, professor of physiology and Liegeois, professor in the law department of the Nancy faculty; these four became the head of the "School of Nancy." These authorities believe that the hypnotic state is physiological, being closely related to natural sleep, and, moreover, that it and all its manifestations are the result of "suggestion"; as to the nature of hypnotism, then, each school denies most of what the other affirms, but neither ventures to give a concise statement. Compared to and considered identical with "animal magnetism," it has been proved that there is no such thing as animal magnetism; there is a physiological generation of electricity in the body, for example, in the process of nerve-conduction, and electricity and magnetism are so intimately related that it might be supposed that the generation of an infinitesimal quantity of magnetism occurred at the same time. In some peculiarly susceptible persons with hysteria a magnet may seem to have some influence aside from suggestion, but the experiments are vague. "Animal magnetism" has an interesting history; the term was devised more than one hundred years ago by Mesmer to explain the peculiar results that he obtained by stroking certain persons with magnets; he learned from a Catholic priest that he could produce the same results by stroking with the hands and he discarded the magnets, but the term had been coined and still remains. The strange manifestations demonstrated by Mesmer are identical with those of hypnotism, and are not due to the power of magnets, apparatus or to any personal organism. This was proved as long ago as 1785 by a commission appointed by the King of France, of which Benjamin Franklin was a member. Therefore, we can say safely hypnotism, then, is not "animal magnetism." To explain the induction of hypnosis in one person by another is a problem; yet an observation of the phenomena occurring during hypnosis throws some light on the nature of its origin. As pointed out by Patrick, "the high degree of suggestibility in a deeply hypnotized subject depends not upon what is said to him nor how it is said, but upon the fact that the patient, or perhaps, I would better say, the mind of the patient, accepts it as true, the higher mental powers, the judgment, the critical faculty being in abeyance, or a state of inhibition. It makes no difference if the statement, or command, be conveyed in words, in writing, or by gesture, the result is the same. Occasionally mere sound of light or other sensory impression is sufficiently suggestive to the receptive mind of the subject to induce a train of hallucinations with appropriate and expressive postures. The degree of suggestibility in the hypnotic state varies. A patient may accept the suggestion that he cannot open his eyes, but not the one that he can feel nothing with his right hand, and he evinces in a lively way his perception of pain when you stick a pin into it. Another patient, however, accepts his suggestion and does not feel the pin-prick at all. To repeat, there are different degrees of susceptibility, of suggestibility, of passivity, call it what you will, during hypnosis, and that is just what we find in a study of the genesis of the state. Some subjects are susceptible and some are not, and the operator's mind, his 'will-power,' his 'animal magnetism,' is a most unimportant factor in the determining influences. The men who claim to succeed in the greatest

percentage of cases (the followers of the school of Nancy) make no effort of the mind whatever, at least not a bit more than the mere effort of communication, while some operators hypnotize their patients by simply placing them in front of a revolving mirror or some such mechanical device and leaving them there till they go to sleep: patients have been hypnotized by a sudden bright light or loud sound without the knowledge or intervention of a second person. Indeed, this psychic state may be so favorable that no external influence whatever is to be discovered, and the patient falls spontaneously into the hypnotic state—auto-hypnotism, generally due to auto-suggestion."

The hypnotic patient believes, however, in a mysterious force which makes him susceptible, and the belief of the operator himself may have a similar power, simply because his consequent confidence and assurance conduces indirectly to the psychic state of the patient which makes him obedient and passive. In short, hypnotism is a subjective phenomenon, depending upon the nature and state of the subject, the person hypnotized, influenced by the place, the environment, the persons present, disturbing noises, the object for which hypnosis is induced, and with these naturally the personality and conduct of the hypnotizer; but we must not suppose that there is "a hypnotic power," that a peculiar, unique, and mysterious influence goes out from the person of the operator, the stronger, which takes charge of and influences the personality of the subject. Hypnotize a patient and he lies quietly, with eyes closed, breathing regularly, apparently unconscious, but rouses if loudly spoken to or pricked with a pin, while if left alone he continues to slumber for some time and finally awakes from what he considers to be a natural sleep. Under such circumstances, we are apt to incline with Bernheim, who succeeded in inducing such a hypnosis in eighty per cent. of his patients, that hypnotism is physiological and nearly related to sleep, but when we see severe hysterical convulsions caused by hypnotism or by the hypnotic attempt, when the patient awakes dazed, dizzy, uncomfortable, when we see by suggestion in the hypnotic state a blister produced by a cold key or coin, when we see induced an auto-hypnosis that can scarcely be distinguished from different phases of grave hysteria, the theories of the school of the Salpêtrière that hypnotism is a disease and closely related to hysteria seem true.

What is the practical value of hypnotism? What proportions of patients can be hypnotized and, once hypnotized, how much good can be done? When is it indicated. When contra-indicated, may it be injurious in its immediate or remote effects, and how shall hypnosis be induced? The highest authorities differ markedly, but remember that results will depend to a considerable degree on circumstances, and the tact, judgment and diagnostic skill of the physician; as the mortality of amputation at the hip depends on the ability of the operator, the character of the disease or injury, the constitution of the patient, the surroundings, nursing, etc., so many elements enter into the determination of the practical value of hypnotism. Probably it is possible to hypnotize ten to twenty per cent. of patients; Bernheim claims to succeed in about ninety per cent. of his cases; but his conditions are exceptionally favorable, his reputation as a hypnotist is great and patients never doubted that he would succeed. These patients see others hypnotized every day, it is a part of the routine, and they

take it as a matter of course, the same as any other medicine, without question, fear, curiosity, or amusement. The obedience and submission of the patients is absolute, and you will find that it is those accustomed to obey who make the best subjects. Moreover, they are largely French, and French people are ideal subjects. Charcot and his disciples believe that not over twenty per cent. of patients may be hypnotized, because the subjects must have hysteria or a hysterical tendency; here they are certainly wrong, but it is a fact that the majority, not all, of the best subjects are those who have or may have hysteria. When it comes to the discussion of what can be cured or relieved by hypnotism, the followers of the school of Nancy claim that it may be of greater or less utility in nearly every known disease—not necessarily as a curative agent, but as a palliative to relieve distressing symptoms. The school of Salpêtrière teaches that it is of use only in hysteria and not always then. As to the claims of the school of Nancy, Bernheim has used hypnotism in the following cases, according to Patrick: Secondary syphilis and mild infection following premature delivery, 1 case; alcoholic multiple neuritis, 1; myelitis, 2; tuberculosis, 3; chronic gastritis, (dilatation of stomach), 2; chlorosis, 1; subacute bronchitis, 1; asthma and emphysema with chronic bronchitis, 1; rheumatism, 4; jaundice, 1; tumor of liver, 1; alcoholism, 1; mitral disease, 2; typhoid fever, 2; apoplexy (hemorrhage), 1; diabetes mellitus, 1; exophthalmic goitre, 1; hysteria, 5; epilepsy, 1.

In the school of Nancy, hypnotism is not used entirely with the idea of restoring pathological tissues, but to relieve symptoms; such as cough and vomiting in phthisis, pain in rheumatism, headache in typhoid fever, etc. Did it make these patients more comfortable, did it relieve their pains and headaches and make them sleep? It did not to any marked degree, according to Patrick, who spent some time there studying. In some of the hysterical cases the improvement was striking. If there is a combination of organic and functional trouble, entirely fortuitous, or organic disease it may be the exciting cause of hysteria in a previously healthy individual, for example, a woman has an abdominal tumor, which causes certain pains and other annoying symptoms; finally the effect of this on her mind, be the process conscious or subconscious, is to induce the appearance of numerous other pains and troubles which are purely functional, or a man has locomotor ataxia and consequently difficulty in standing and especially in getting across a crowded street promptly. This, not unnaturally, makes him anxious and timid, and presently we have grafted upon his spinal ataxia an uncertainty in station and locomotion, which is of purely mental origin, but quite as real as the other. A man suffers a severe contusion of the shoulder which is very painful and disables him for some time. Long after the integrity of the tissues is entirely restored he is very weak in the arm and cannot use it without pain—that is, a functional affection has been left over when all organic disease has ceased. In all such cases hypnotism may be of signal service in the diagnosis as well as treatment, removing all of the functional element. Hypnotize a subject and make him insensible to pin-pricks it does not prevent conduction of this irritation to the sensorium, but merely the recognition of it; the patient neglects or refuses to recognize the pain. If the patient is very susceptible to suggestion he will fail to recognize very painful impressions, such as the extraction of a tooth,

and so in the most profound hypnosis surgical operations may be performed without pain. As a matter of fact, however, subjects as good as this are rare, and the field of hypnotism in practical surgery has been found to be very limited. As we may at times induce anesthesia in surgical cases so may we also in medical cases. The pains of locomotor ataxia, rheumatism, neuralgia, etc., may be relieved, but the relief is, as a rule, not enduring, and in the more severe cases, very good subjects are necessary to success. It is quite certain that in the exceptionally good cases the bowels may be regulated, appetite increased, cough and especially insomnia alleviated. There is no doubt about the efficacy of hypnotism in that omnivagant disease hysteria. There is scarcely a symptom in all its multifarious manifestations that has not been removed by suggestion during a hypnosis, such as pain and anesthesia paralysis, spasms, and contracture, Raynaud's disease, affection of the digestive and genito-urinary systems, erythromelalgia, polyuria, anuria, convulsions and even affections of the special senses.

It is the common belief that hypnotism has a deleterious effect upon the individual; is this true? As to the immediate effects, in hysterical subjects, but not rarely, it occasions an hysterical outbreak of one form or another, and this is independent of method used. The attacks thus produced are ordinarily of short duration and easily controlled, but they are occasionally very troublesome and refractory to treatment. Following the hypnosis patients often, indeed as a rule, complain of some dizziness or somnolence, or a "queer feeling" in the head, and this may be sufficient to make even good subjects very loath to be hypnotized. These unpleasant feelings may, however, be disregarded if we are doing our patients good, as may also the rare difficulty of being unable to awaken the patient. This does no particular harm, as he will awaken spontaneously after a time if left alone. All these untoward effects may ordinarily be prevented or reduced to a minimum by suggestion during the hypnosis. As to the remote effects it is not so easy to speak positively, for here again authorities differ widely, as widely as positive affirmation and negation. It would seem to depend largely upon circumstances. If the patient comes to feel that he has no will-power of his own, that he is the mere puppet of another, and thus loses his self-reliance and feeling of personal responsibility, the result is certainly deplorable; worse, if he is convinced that the operator has some "mysterious power" over him, body and mind, and can compel him to anything. On the other hand, if we use hypnotism in a simple and rational way, as we do pills, powders and potions, in properly selected cases, abstain from experimentation and all airs of mystery and power—use it, in other words, with common sense and reason—I believe it may at times be used, not only without harm, but even, as an adjunct, to strengthen an already tottering will-power and to restore nervous balance. But again let me call to mind that it is sometimes this very faith in your "power," this implicit obedience and renunciation of self, this belief in a mysterious influence, which makes your patient a good subject, so that we find we have travelled in a circle and have found one of the practical limitations of hypnotism.

There are four principal methods of inducing hypnosis: causing the patient to look steadily at a revolving mirror or colored glass disks, causing him to regard fixedly some object (preferably a bright one) held

about eight inches in front of and five inches above the eyes, stroking or passes, and simple suggestion. The first is not largely used and has few advantages. With the second method suggestion is generally combined, while in using the third method, you sit facing the patient, begin by stroking with both hands the forehead from the middle line to the temples, then passing from the forehead down the sides of the face and neck, and finally a long stroke along the arms to the finger-tips the procedure occupying two or five or six minutes. At the last it is customary to add suggestion. The school of Nancy teaches that suggestion is the key-note of hypnotism; that all methods are only different means of suggestion, and that hypnosis is impossible without it. They consequently use suggestion only, without accessories.

To hypnotize a case, Patrick suggests the following procedure: I place my hand on her forehead, ask her to look at me, to keep her attention, and say quietly but positively, "Now you are going to go to sleep. Your head is beginning to feel dull and heavy. Your eyes are getting tired, the eyelids are heavy. You're getting very sleepy, duller and duller, eyelids are heavier; your eyes are closing, closing; now you are going, your eyes are closed and you are sound asleep." As I finish I pass my hand down and close the eyes. Then I continue, "Now you're asleep, deep asleep, your eyes are closed and you can't open them. Sound asleep, deep sleep, deeper yet. Now you are sound asleep, your eyes are closed, and you can't open them. You could not possibly to open them if you tried ever so hard. Try to open your eyes. You can't open them, not a bit. Try harder, harder yet." As you see, she apparently tries to open her eyes and cannot. I raise her arm in the air and say, "Your arm is stiff just like a bar of iron and you cannot bend it," and you see she is unable to do so. I stroke it and say, "It is getting numb, all the feeling is going with it, nothing at all," and she apparently feels nothing of this pin as I thrust it through a fold of the skin. To give an example of post-hypnotic suggestion I tell her that she cannot pull her arm down until I give her leave; that when I awake her her arm will still remain above her head and that it will stay there until I tell her to put it down. I say further, "When I count three, you will wake up feeling bright and fresh, with no headache, no dizziness, no queer feeling in your head but perfectly clear and well, but you will not be able to put your arm down until I tell you." I count three, she awakes as if from a sleep, but her arm remains in the air, and try as she will she cannot put it down until I say, "That's all right, now put it down." This man I hypnotize by the method of fixation. I hold a small, bright object, which happens to be a palpebral retractor, in a position that makes him converge and look upward. After a few moments I notice the pupils dilate somewhat, I make a few suggestions as in the first case, finally close the eyes and continue the suggestions as before. In this case, however, I do not succeed in inducing a complete analgesia; he winces when I thrust a pin deeply into his arm.

It is unfortunate that hypnotism in America has fallen into the hands of the fakirs and the "professors." By clever art they mix the genuine with the false in such a way as to give the impression to the intelligent part of the public that hypnotism is a "fake" or a plaything, whereas, in proper care it is an excellent therapeutic measure.

RECENT ADVANCES IN THE STUDY OF RHEUMATISM.

BY J. LEE FOWLER, M.D.

PART I.

THE nature of articular lesions, which run a chronic course, has most important bearings upon their treatment, for example: there is a group of cases commonly met with among women in early or middle life, in which the disease is characterized by the frequent implication of the small joints of the hands and feet; by the symmetrical distribution of the lesions, and by the conspicuous degree of accompanying secondary muscular atrophy. The large joints suffer as well as the small, and those of the spinal column and the temporo-maxillary articulations are implicated in a large proportion of the cases. In another group of cases, the majority of the sufferers are also females; here the articular lesions tend to be symmetrically distributed, and the small joints of the hands are usually attacked; the terminal joints of the fingers are especially exposed to attack, and with peculiar frequency the carpometacarpal joints of the thumbs are among the earliest articulations to be involved. Muscular atrophy is less conspicuous, and if it should be eventually established that the conditions described really constitute two distinct diseases, the term rheumatoid arthritis should be used to designate the former, and the term osteoarthritis to indicate the latter malady, in which the bony changes are early and conspicuous. The articular changes in rheumatoid arthritis are so obviously progressive that one cannot regard the condition as one of simple damage to the joints left behind from a rheumatic attack; the rheumatoid changes may develop upon the top of a rheumatic attack, owing to secondary infection. In the great majority of cases, although there may be short prodromal periods of pain and stiffness without obvious swelling, rheumatoid arthritis has its characteristic features from the start and is not preceded by any attack which can be, with good reason, regarded as rheumatic. Nor does one expect the visceral lesions of acute rheumatism, and especially those on the cardiac valves, to be developed in its course. If there is any relationship between osteoarthritis and gout, it is with nodular or osteophytic form; but no single pathological theory will suffice to cover all cases. In the treatment of these cases, any debilitating influences that are constantly present should be relieved; if any unhealthy condition of the mouth or gums is present, attend to it; the diet should be as nutritious as the condition of the patient allows, and meat should by no means be restricted. Stimulants, in some cases, appear to be beneficial; to keep up the patient's strength, tonic drugs, such as cod-liver oil, iron, and arsenic should be used, always provided that the drugs do not upset the digestion. Massage and passive movement of the joints themselves do more harm than good. Osler approves of the division of the chronic lesions of the joints, suggested by Garrod: (1) An infectious group, comprising the spindle form in adults and the variety in children with enlarged spleen and enlarged lymph glands, and (2) the dystrophic variety, in which there were osteophytes, etc. Recently, an attempt has been made to separate as distinct maladies varieties of arthritis deformans characterized by rigidity of the spine without involvement of the joints of the limbs; and with ankylosis of the vertebrae plus arthritis of the hips and shoulders, but they were only varieties of arthritis deformans with special localization in the spine, and not separate diseases. Arm-

strong believes that in all cases of arthritis there is more or less interference with the nerve nutrition of the affected joint or joints. In many cases of the rheumatic or gouty forms of arthritis the trophic factor is present in a small degree only, and these cases are readily amenable to well-directed treatment. When the trophic factor predominates, the cases prove much more refractory. Cave said that since we know so little of the infective agent we can do little to destroy it by direct and specific remedies. But in every case, and especially in the early stages, search for a possible source of infection; the cavities of the nose and ear and their accessory sinuses, the buccal cavity, the whole extent of the alimentary canal and its diverticula, the skin, the respiratory tract, and the genital and urinary organs, should be examined carefully.

In acute rheumatic fever in children there is less liability to joint involvement than in adults and it may be altogether absent, while sometimes the only evidence of a joint implication is the subjective symptoms of pain complained of by the child, the so-called "growing pains." Should the joint be involved the anatomic changes are not so severe as in adults, there being less exudation and fewer structural changes of the joint and the surrounding tissues and, therefore, less pyrexia. On the other hand, strange to say, there is in childhood a greater tendency to metastasis of the micro-organism and their toxins leading to an involvement of other tissues and serous membranes and even the skin, for we have as a frequent accompaniment of the diseased joints, a torticollis, an erythema nodosum, a purpura rheumatica, a chorea, an endocarditis, a pericarditis, a myocarditis or a formation of tendinous nodules. Endocarditis is the complication most frequently present in childhood, while peptonuria is a frequent condition found in acute rheumatic fever in children, probably caused by an abundant destruction of the leucocytes with an absorption of their peptones. Rheumatic fever is very rare in children under 3 years of age, although there are some authentic cases reported. It is well to remember that the majority of cases of joint disease in children under one year of age are really manifestations of infantile scurvy. The indications for the treatment of this disease are: (1) To combat the poison. (2) To alleviate the symptoms. (3) To prevent involvement of the heart, and to prevent recurrences. The best method of counteracting the poison is by the salicylates. In acute rheumatic fever, administer the salicylates prophylactically. After the acute local and constitutional symptoms have subsided and the patient is to all intents and purposes apparently cured, the administration of the salicylates is continued for some time. Thirty to eighty per cent. of cases of acute rheumatism are preceded by an angina. That both conditions have many etiologic points in common—season of the year, cold, wet, fatigue, depression, vitiated air, etc. The connection of angina and rheumatism, though undoubted in a number of cases, is not yet clearly established. The tonsils may be the points of entry of the rheumatic virus, and this even although the naked eye appearance of the throat gives no indication of its being affected. The particular affection of the throat which is associated with rheumatism is not yet established. Apparently it is not peritonsillar abscess (quinsy). Peritonsillar inflammation does not appear to be arrested by the antirheumatic remedies. Many cases of parenchymatous and lacunar tonsillitis, on the other hand, are considerably benefited by such treatment. The ques-

tion requires further research in two directions: one in differentiating the various forms of angina and determining the one which is associated with rheumatism; the other to discover the true nature of rheumatism itself. Thomson points out the frequent inflammatory conditions of the naso- and oropharynx in their association with rheumatism and the condition of granular pharyngitis with arthritis. Operations on the nose have been followed by angina; and this in turn by an attack of rheumatism. In many cases also there may occur an acute inflammation in the cricoarytenoid joint. This may be mistaken for paralysis of the recurrent laryngeal nerve, but may be differentiated by the following signs: (1) dyspepsia; (2) painful cough; (3) occasional tumefaction over the arytenoid; (4) sharp pain on pressure along the posterior border of the thyroid cartilage; (5) the healthy arytenoid is not tilted forward into the affected one, and the healthy cord does not during adduction pass across the median line.

Newsholme, in a thorough study of the statistics of rheumatic fever, concludes that these statistics show two kinds of epidemics, which he terms "explosive" and "protracted." The explosive epidemics terminate in one, or at the utmost three years, while the protracted epidemics are observed chiefly in large centres of population, or in studying the statistics of an entire country, representing the fusion of two or more explosive epidemics which do not exactly coincide with each other in point of time. He finds there are certain favorite years for epidemics; thus, in England, these are 1855-6, 1859, 1864-5, 1868-71, 1874-6, 1884-5, 1888, and 1893, while in other countries the same years are frequently characterized by epidemics, but in some instances there is an anticipation of or lagging behind the favorite years for England. While there is no regular periodicity in the epidemic years, epidemics are apt to recur at intervals of 3, 4 or 6 years. There is in many instances a regular alternation between the explosive and the protracted epidemics, two of the shorter and smaller epidemics commonly occurring before the return of an epidemic of the protracted variety. The occurrence of definite epidemics is valuable confirmatory evidence that rheumatic fever partakes of an infectious character. by its mode of onset, the frequent occurrence of preliminary sore throat, and the course of the fever. The apparent absence of infection from person to person is explicable on the ground that the contagion is buried deep in the infected joints. The specific action of salicin is also comparable to that of quinin in malaria and mercury in syphilis. There is important evidence that the infection of rheumatic fever may cling about certain houses in a manner strikingly like that of tuberculosis and diphtheria. The susceptible population is not attacked at the same time, which may be explained upon the ground of the gradual convection from place to place. The disease is probably ubiquitous. Four out of every thousand persons are annually attacked by rheumatic fever; it being essentially an urban rather than a rural disease. Newsholme concludes that the disease is essentially a soil disease, due to a saprophytic soil organism which is drowned out in wet years, and multiplies rapidly in dry years. The inoculation may be brought about by domestic vermin, or the housefly may convey it to milk and other foods. Rheumatic fever being pre-eminently a disease of childhood it becomes essential that the pathology of the disease must explain the manifestations which are met with in the young. The cardinal lesions, such as endo- and peri-

carditis and nodule formation, are strikingly comparable to each other; for each shows a destructive and reparative process, in none does suppuration occur. The changes are suggestive of a specific cause and analogous to the metastasis of pyogenic infections. The lesions found are characterized in the human tissues by great local resistance and a tendency to recover. Poynton mentions Cullen's theory that the condition is a direct result of cold upon the joints—now untenable—and Mitchell's nervous theory. Poynton believes that the nervous theory exaggerates the importance of the influence of the nervous system upon other organs of the body and there is no proof that carditis, pleurisy and subcutaneous nodules can result from lesions of the nervous system. The toxic theory implies that the cause of the disease is some poison circulating in the blood. It has led to three distinct conceptions: (1) the chemical theory, (2) the neurochemical, and (3) the infectious theory. The chemical theory explains the causation of the disease on the ground that lactic acid is the offending material; other authorities claim that uric acid is responsible. To both of these theories Poynton advances the objection that the proof that these acids are in excess in the blood tissues or the sweat-secretion of rheumatic fever is insufficient, and we are not certain that the typical lesions may be produced by either or both of these factors. It is true, beyond question, however, that Richardson, in 1853, and other observers after him, obtained the clinical picture of rheumatism by the injection of a 10 per cent. solution of lactic acid. The clinical picture of rheumatism favors greatly the infectious theory. This is well borne out by the pathology of the disease and the researches which tend to prove its epidemiology. While there are certain features of resemblance between malaria and rheumatic fever, the local inflammation of the joints and viscera of rheumatism are unlike malaria and the blood examinations are totally dissimilar. The other important views on the nature of the infection are respectively: (1) that there is no specific micro-organism, but the disease is a form of septicemia which owes its origin to staphylococcal or streptococcal infection, (2) that the infection is necessarily symbiotic, (3) that the micro-organism is a specific bacillus, (4) that the micro-organism is a specific diplococcus. The first two of these views have hosts of supporters and in our present state of bacteriological knowledge the question remains an open one. The symbiotic nature of the infection has been advanced because cocci have been so frequently found in rheumatic lesions which are not specific. A specific anaerobic bacillus has been isolated by Achalmé and others: A diplococcus has also been isolated by several observers from the blood, urine and tonsils in patients ill of rheumatic fever and in the postmortem lesions of the condition. By a series of carefully conducted experiments they have been able to produce by intravenous, inoculation into rabbits, polyarthritis, valvulitis, pericarditis, chorea and nodules. They have been found in these lesions in rabbits and in both rabbits and man circulate in the blood during an attack of pericarditis. The authors report of the great difficulty of recognition of the organisms, apart from their small size and the question of technic; it is on account of the fact that the disease is rarely fatal early and the organisms are rapidly destroyed in these lesions. Poynton suggests a possible explanation of the rheumatic recurrences by the persistence of a single coccal form which survives after the disappearance of the diplococcus. In a con-

siderable number of cases of rheumatic fever the poison enters the system through the tonsils, the inflammation of which may be the earliest indication of the systemic infection. The second is that certain inflammations of the tonsil occur with greater frequency in patients with arthritis diathesis. There are two varieties of rheumatic sore throat—faucial erythema and tonsillitis proper. Faucial erythema is more common in adults; rheumatic tonsillitis in children, in whom it usually assumes the follicular type. Quinsy being more common in older subjects. Faucial erythema is an initial manifestation of acute rheumatism. Tonsillitis may be actual primary lesion. We know that endocarditis has followed a non-scarlatinal tonsillitis unaccompanied by joint pains. In other cases the tonsillitis has immediately preceded an attack of arthritis or of chorea. Tonsillitis may also occur during an attack as well as at the beginning. We can prove no causative relation between peritonsillar abscess and rheumatism.

Menzer reports his work, which consisted in the discovery of streptococci in the joint exudate in 2 cases of rheumatism, and in the tonsils in 3 cases: to investigate the tonsils he exercised a portion and made bacteriological examinations of the cut surface, thus looking only for bacteria that were present in the substance of the tonsil. The bacteria found produced inflammation of and exudation into the joints in animals and in some cases caused endocardial changes. The streptococcus discovered by Meyer differed in some ways from that found by Wassermann, and in the one which Menzer reports also showed some variations from either of these. The conclusions which Menzer reaches are, that the discovery of streptococci in rheumatism is by no means new, but this does not mean that it is entirely without importance. It is true that one can find streptococci and staphylococci frequently in almost any infectious disease, and particularly in the mouth and throat; in the latter places even under normal circumstances. The importance of certain streptococci is, however, that they tend to cause joint change in animals. He considers it a question whether we shall ultimately find streptococci to be the sole cause of rheumatism; also whether the streptococci which are at times found on the normal tonsils will prove always to lack the peculiarity of producing joint changes in animals. He considers it impossible as yet to make any definite statements concerning the bacteriology of rheumatism. A number of forms of bacteria have been discovered, chiefly streptococci, staphylococci, and pneumococci, and some of these have the power of producing joint changes. It is possible that some one of these changes may be shown to be the actual and constant cause of typical rheumatism, though this is certainly questionable, considering the close relation of typical acute rheumatism to rheumatoid and pyemic infections.

Food-Value of Potatoes and Chestnuts.—The composition of the raw chestnut has been found to be as follows:

Water, 53.640%; proteid, 3.710%; mineral matter, .870%; fat, 2.160%; starch, 31.790%; sugar and gum, 6.100%; fiber, 1.730%. The raw potato is:

Water, 76.700%; proteid, 1.200%; mineral matter, .900%; fat, .100%; starch, 19.100%; sugar and gum, 1.400%; fiber, .600%.

A comparative study of the above analyses will prove interesting and useful, the advantage as a nutrient being with the chestnut. Both articles should be roasted rather than boiled.

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A man's growth is seen in the successive choirs of his friends.—EMERSON.

RECENT ADVANCES IN CARDIAC THERAPY.

ACCIDENTAL cardiac murmurs is a term devised by Sahli, by which he means the presence of a systolic murmur without other clinical signs not justifying the assumption of a valvular lesion. Such murmurs have been heard in persons apparently in perfect health, but particularly in anemia, fever, and jaundice, where the postmortem examination positively excluded any valvular lesion; hence, Sahli calls them "accidental," and no importance is attached to these murmurs, for there is no disturbance of the valvular mechanism. Sahli distinguishes these murmurs from so-called functional murmurs, which are due to a relative insufficiency of the valves, caused either by anemia or by any other affection which damages the cardiac muscle, and leads to dilatation of the ventricles, and, therefore, to more or less disturbance of the valvular mechanism. Functional murmurs are to be treated just as the murmurs due to anatomical valvular lesions, but accidental murmurs offer no indications for therapeutic action. The cause of these purely accidental murmurs is still more or less hypothetical, but it seems that they occur wherever the conditions are favorable to an abnormally rapid blood-flow, and the physical nature of the blood in anemia would seem to have a share in their production. While the occurrence of systolic accidental murmurs is generally accepted, the question of the existence of such murmurs during diastole has not yet been settled; Sahli believes that such diastolic murmurs do not exist.

Sansom believes that practically all cases of heart disease in individuals below 35 years of age are rheumatic in origin; rheumatism of the endocardium may even occur during intrauterine life. He has described a case in which one of the fetal heart-sounds was discovered to be replaced by a harsh murmur; at the child's

death, shortly after birth, there were found great hypertrophy of the right chambers of the heart with vegetative endocarditis of the tricuspid valves. Sansom believes that practically all fetal endocarditis is rheumatic, while in early childhood the rheumatic process affects the myocardium and pericardium as well as the endocardium. He states that digitalis may be properly administered if there is no febrile disturbance and no evidence of acute inflammation; but if these are present, it often does harm; and if it does not do good after two or three days, it should be dropped. Locally, he prefers the application of an ice-bag. Muscular exercise is commonly too indiscriminately used, and should be preceded by a period of absolute rest if the heart is much enlarged. Sansom especially insists upon the importance of the nervous element in cardiac disease, with the frequent employment over a long period, of a continuous galvanic current.

Diagnosis in cases of cardiac disease without a murmur is very difficult; particularly is this true in disease of the aortic valves, or of the aorta just above the valves. The diagnosis of a dilated heart or of cardiac weakness is comparatively simple, for in these cases we have direct evidence of the failure of the cardiac muscle, and the presence or absence of a murmur signifies but little. Well marked stenosis of the mitral orifice or of the aortic orifice, though often unattended by its characteristic murmur, is usually recognized without much difficulty, but there is a class of cases in which there is either atheroma or thickening of the aortic valves with atheroma of the aorta, or there is atheroma of the aorta involving the orifices of the coronary arteries, and without involvement of the aortic valves, which are not attended by a murmur. While the difficulty of the diagnosis of some of these cases is very great, still they should be recognized, if possible, for the prognosis is of the utmost gravity. Most of these cases have been business men, of middle age, who have been in active business for many years, and who have worried over their business, complaining for a considerable length of time of "dyspepsia," then they have painful sensations about the heart, and finally dyspnea on exertion. They are liable to sudden death, usually with the symptoms of angina pectoris. In some cases the diagnosis of this form of cardiac disease is comparatively easy; in others it is very difficult. The most significant physical signs of this condition are enlargement of the heart and an absence of the aortic valve sound, or a feeble aortic valve sound, while another source of error is the estimation of the size of the heart, for many hearts have been regarded as diseased which were absolutely healthy simply because the apex was farther from the median line than is commonly the case, or because percussion revealed a larger area of cardiac dullness. The left border of the heart is, in the healthy individual, much farther to the left than is usually supposed; it is com-

monly regarded as being about a quarter of an inch to the right of the left male nipple, and it is believed that much increase of the area of dullness beyond that point indicates enlargement of the heart, yet the line of the left border of the heart usually runs through the areola of the male nipple, and often to the left of the areola of the nipple; palpation of the apex beat is the most reliable method of estimating moderate increase in the size of the heart, but even here the opportunities for error are numerous. The relation of the apex beat to the nipple line is not a safe guide, for the nipple varies in its position in different individuals; and in the healthy adult heart, the apex beat may sometimes be found to the left of the nipple line. Estimate the distance of the apex beat to the left of the mid-sternal line; such apex beats may be found in the healthy male adults, in the erect position, from two inches and a quarter to four inches and a quarter to the left of the mid-sternal line, depending upon the size of the individual, and the degree of development of the chest. In many cases the question as to whether a heart is to be regarded as enlarged or not is far from a simple problem, and its solution must be sought through a process of rational deduction. Cases of acute dilatation of the heart without endocarditis are those which are most liable to lead one into error, for here the symptoms of interference of the functions of the stomach and liver may assume such prominence as to entirely overshadow the breathlessness and palpitation, which would otherwise direct our attention at once to the heart, and even though the heart be examined, the absence of a murmur, and the absence of a rheumatic history, may be deceptive. Cardiac disease may be masked by acute disease of the lungs, or by general diseases. For example, a bronchitis may mask the murmur of valvular disease of the heart. Malignant endocarditis is particularly liable to be overlooked. Here the fever and erratic chills are liable to be referred to the lungs if there be evidence of disease of the lungs, or the disease has been mistaken for malarial poisoning.

Oertel's method is limited to cases of heart disease in which compensation has not been lost, but Schott's method is applicable to a greater variety of cases, and now the treatment can be carried out in this country by artificially prepared baths and the introduction of proper gymnastics. All cases of chronic heart disease, except aneurism of the heart, or large vessels, and advanced general arteriosclerosis, are open to treatment, where valvular disease forms no contra-indication to its employment, for most striking restoration of compensation has been obtained in cases of the utmost gravity.

An International Hygienic Exhibit is planned to be made a part of the general exhibit in Milan, in 1906. On the invitation of the Italian General Health Department, many countries will assist in the display, which will have for its object the presentation, in a practical manner to the public, of the advances made in the field of sanitation during recent years.

ORGANIZED MEDICAL RESEARCH. HOSPITAL SERVICES.

THE St. Louis *Medical Review*, in a recent issue, laments the paucity of original scientific work in that city, and ascribes it largely to the lack of large and well-controlled hospital services, with organized corps of internes and pathologists. It speaks with particular regret of the fact that there is not a single hospital which does not throw its ward service wide open to any man who sends to it a patient able to pay from five to ten dollars a week.

We agree most heartily with some of the points made by this editor and disagree equally heartily with certain others. First of all, it must be admitted that an autocracy is the ideal form of government for a nation, society, municipality, school, hospital or anything else, when there is need of a reform and of haste in the good work, and when the autocrat is of the right kind. But experience teaches that the system which establishes an autocrat, by its very nature, fails to guarantee that the autocrat is of the right kind. Hospital autocracy has been well established in America, and while it has produced many able men and many important achievements, it is a matter of simple history that the fullest developments of medical science, and, indeed, the best attainments of autocracy itself, have been due to the extension of opportunities to a larger number of investigators.

At present, the hospital work of practically all large cities is divided among a large number of comparatively small hospitals. Large hospitals also exist, but they are, in the main, survivals of the old days when one hospital was thought to be enough for a large population, and, in almost no instance, have they grown commensurately with the population. With more or less sincerity, the plea is constantly being made for a return to the control of a vast amount of clinical material by one man. But the inevitable answer to this plea is a negative. In the surviving municipal hospitals, the division of labor is absolutely essential, and the men who divide the labor insist upon the maximum of individual authority. Indeed, in many if not the majority of cases, the various services, even in the same branch are practically independent of any central authority, although certain courtesies may be extended to the senior attendant in each. As to the men who cannot get into the larger hospitals at all, they are combining into convenient units for the management of other hospitals, and, the smaller the hospital, the more dependent it is upon the good will of the individual practitioner, and it cannot secure this good will except by opening its doors to the latter, not only for cases that can pay for private rooms or ward lodging and nursing, but for cases depending entirely upon public charity.

It is not our present purpose to consider the ethics of the relation of the medical profession to the hospital. Rightly or wrongly, wisely or unwisely, the principle has been declared that a hospital supported by the people,

either by taxation or by public unofficial charity, must concede to every patient the right of choice of a physician, and to every physician, in good standing, the right to have his patients cared for. Personal graft cannot endure in this country, whether the graft is the direct filching of money, the indirect bearing of necessary expenses, the advertisement of one's private business, or even the gratification of ambition, and whether the motive behind the ambition is selfish or ultimately altruistic.

There are undoubtedly combinations of circumstances in which medical autocracy is desirable, and in which divided opportunities for clinical and scientific research are frittered away. Yet, even when nothing tangible results from a small hospital service, and when we are disposed to wish that many such small services might be combined into one large one we must not forget that so many men are acquiring experience and ability, instead of one. Moreover, the amount that any one man can accomplish by his own brain, and hands, and eyes, and ears, in medical research, is not great. It is rather the scientific imagination, executive ability and general knowledge that count.

If we balance the system of autocracy against that of individual study, we see that, on the one hand we have greater potential execution, on the other a greater probability of merit and greater incentive to research. The bulk of clinical material, being the same in the aggregate, it is better adapted to systematic study with any one object in view in the former case, more apt to teach a variety of useful lessons in the latter. The former method gives greater scope for the true genius, but also allows greater waste of opportunity by the man of mere influence, or by the superannuated, the latter method tends to develop the average skill and knowledge of the profession, and, hence, leads to a more symmetric and diffused growth.

The advantages of autocracy need not be sacrificed by democracy, and applying the figure to hospital work, it is apparent that voluntary co-operation and submission to mutual suggestion can accomplish quite as much as the work of subordinates under one head. A union of smaller hospitals to secure expert pathologic examinations is needed in many cities, and a provision by endowment for purely scientific investigation is something for which every physician should lend his influence. Even without such endowment it is possible to extend mutual courtesies in hospital services in such a way as to afford ample material for any particular investigation, and the various pathologic examinations can best be performed by a union of interests, and effort.

Vaccination against variola was practiced, it seems, more than 1,000 year B. C., by taking the pustule of the cow's teat or from the arm of a human being, placing it upon the point of a lancet and introducing it into the arm.

HOSPITALS AND DISPENSARIES.

THIS perennial question is up again; and there are again some worthy and trustful souls who expect to adjust it. Theirs will be a Sisyphus-task, if there ever was one. We, for our part, haven't the remotest conviction that, Hamlet-like, we are born to set this business right. However, it were pertinent to set forth some observations concerning this really very grave question.

Whenever one discusses this problem of the hospitals and dispensaries he must first meet an interrogatory akin to that which the man of pro-slavery proclivities was wont to put in the confident expectation that it would make further discussion impossible: "Would you have your daughter marry a nigger?" Of course you wouldn't; wherefore it is conclusively proven that the "nigger" should remain enslaved. With like relevance the question: "Can you do without hospitals and dispensaries?" is supposed in the same confident manner to paralyze one's faculties for argument. The answer to this (if one have recovered from the blow sufficiently to give it) is easy of comprehension by the dullest intellect—if it be but receptive. Yes; we must have hospitals, and we must have dispensaries. We are always going to have among us some really deserving poor, who should and must be succoured; and we must have institutions in which the elders shall teach younger men the practice of healing the sick. The matter is fundamentally one of proportion (as is the case with practically all human situations); it lies not at an extreme of the pendulum, but between the extremes. Moderation (the most important word in the whole dictionary) is the word best fitting here. Now, for specific details:

Dr. Gay, in a symposium on The Abuse of Medical Charity in the *Boston Medical and Surgical Journal* (March 6, '05), states: "There are about 75 hospitals and dispensaries in this city (Boston) for the care of the injured and the ailing, and apparently more to come in the near future. Some of them are private and do no charity work; others furnish both free and paid services, while the remainder are devoted entirely to the care of the poor and destitute, who are unable to pay for the services they need. (Patients paying from ten to twenty-five cents for a visit or a prescription are properly charity patients. This custom of charging a small fee is quite common, and becoming more so. Some dispensaries are thus self-supporting.) It is of public record that upward of 300,000 received practically free treatment in Boston last year (1903), a number equal to about one-half the entire population of the city."

"In Philadelphia," continues Dr. Gay, "with its sixty hospitals and as many dispensaries, more than one-fifth of the population are annually treated as charity patients, while in New York, which has about ninety hospitals and nearly as many dispensaries, one-fourth of the people receive practically free treatment every year."

We recall that in his paper read on becoming President of the New York County Medical Society, Dr. Landon Carter Gray, of most honorable and heart-endearing memory, stated that in the lesser New York, which was then made up of Manhattan and Bronx Boroughs, in a population in 1896 of 1,800,000, there were upon the books of its hospitals and dispensaries more than 793,000 names of those who had been treated in these institutions. Since that time a law has been passed regulating them; with what result the reader may judge from Dr. Gray's statement concerning this city and the following: A single institution among the 180 odd cited by him (and one by no means unique in its energy) boasted recently that it had in one year treated more than 100,000 cases in its dispensary. And its president most roundly scolded the public because the latter would not contribute with desired profusion to its support. From our viewpoint this was, to the contrary, an indication (of which there are none too many) that the public has not gone daft quite beyond reclamation. Another of these institutions is conducted under Jewish auspices—on which account one is amazed by the lack of perception evinced. For of all work of charity, that of this people seems generally to be built upon sane lines. This hospital has been erected upon perhaps the most fashionable thoroughfare in the city, among residences to whose owners a million would look as thirty cents does to an ordinary mortal. This hospital is magnificent and palatial in its appointments—no other terms are adequate. Surely the effect of all this upon the poor patient's psychism must prove disastrous.

And here, it seems to us, lies the really essential point in the whole situation. While the bodies of these patients are being treated their souls are being debauched. And instead of helping the poor by such means as these, there must inevitably, in the course of things, come to pass increased wretchedness, increased poverty, increased disease, pauperism finally. Is this statement going too far? Is it unwarranted? Let us see; one may in the dispensary easily trace the steps: First there is the acted lie in visiting the dispensary under false pretences. The perfunctory question is asked by the clerk—Are you too poor to pay a doctor? The answer is "yes," easy to make by any one bent on getting something for nothing. For such are the labyrinthine processes of the human mind that one may, if he conclude to cast self-respect to the winds, may, if it serve his purpose, satisfy even himself he is poor, no matter what are the condition of his affairs. The circumstances of the case are not investigated in the manner that Charity Organization Societies investigate the cases of the poor referred to them. Why aren't they? Don't ask us.

Well, then, the patient having comfortably lied himself into the consultation room, gets treated. He has got what he came for—something for

nothing. (Of course you wouldn't, as a physician, admit that the dime he may have paid on passing the clerk, is a "something" equivalent to the consultation and prescription.) Here then is fostered and stimulated the habit of getting things without effort. Then comes contempt of effort as being unnecessary to procure what is desired; and upon this comes lapse into idleness and shiftlessness. Here then is developed the fatal position that the poor fellow is entitled to be taken care of by the well-to-do; doesn't the world owe him a living? etc. Then must certainly follow, according to natural laws, which should be obvious to common sense (you'll find them set forth in the Gospels) poverty, consequent misery, discontent, disease, hatred of class, social chaos, anarchy.

Now this condition of things with which our superabundant hospitals and dispensaries are linked, could be eliminated, so far as these factors are concerned, in two days. How? By the action of medical men. Are they going to take it? We think not. Why? Doesn't every medical man know? Is there any reason why we should take up the reader's valuable time or our equally valuable space in a discussion of this phase of the subject?

SUGGESTION.

THIS present day equivalent of hypnotism is not comprehended and cultivated by the practitioner nearly as much as it ought to be. It is, or should be, a most valuable part of one's armamentarium. It is the only basis of any success which the mind healer, the Christian Scientist and all the rest of them achieve. The physician should have put himself in the state of mind of the wise clergyman who was a number of years ago in charge of the Judson Memorial Church in this city. At that time the Casino theatre had just begun its career as a disseminator of vice and a debaucher of the souls of the city's youth (in the opinion of the pious; this writer is bound to note, however, that he has a number of times visited this attractive theatre without injury to his self-respect or without loss of the regard of many good people). Well, anyway, the topmost pinnacle on the roof of this Casino is surmounted by a huge lyre brilliantly lighted up at night, so that it to be seen from the housetops throughout the city. The wise clergyman to whom we have referred saw this lyre (from a housetop, of course), observed at once, "Why should the devil have all the good ideas?" and straightway had a beautifully illuminated cross placed on the top of his church steeple, where it is now nightly a majestic beacon which is to be seen from many miles around.

Why, in the same way, should the ethical physician leave to the quack a really very valuable therapeutic adjunct? Suggestion is "the insinuation of a belief or impulse into the mind of the subject by any means, as

by words or gestures, usually by emphatic declaration." (Century Dictionary.) The art in suggestion lies in the ability to present an idea in such a persuasive, convincing and apparently probable light as to command the assent of the subject. The process is well represented in the every-day expression: "What made you put that idea into his head?" The Christian Scientist works by means of suggestion when he strives to impress upon the disciple that he must "hold the thought" so and so. The essential difference between suggestion and hypnotism is that in the latter the subject arranges beforehand to submit to hypnotism. He is generally fully aware that he is about to undergo the process. Suggestions are more often than not implanted in the subject's mind when he is unaware of the transference: The act of reception may be involuntary. In suggestion the subconscious mentality often receives an idea to which the conscious mentality may be oblivious.

In every-day practice the physician practices the art of suggesting healthful ideas; the laity say, (if he be a successful practitioner), that he has the faculty of inspiring faith in the patient—a wholesome and a profitable faculty. When during his call he states with positive assurance, his conviction that such and such a symptom will disappear and that he will find the patient better to-morrow, he suggests the idea of improvement which belief in his statement impresses upon the patient's mind. When next day he declares his expectation that the patient will be able to sit up on the following day, the suggestion stimulates the latter's latent energy to the extent of realizing the expectation. When then he declares he will be much disappointed if he does not find the patient awaiting him in the sitting room on the occasion of his next call, the latter is aroused by the same processes to the point of obeying the suggestion.

All these editorial observations have been "suggested" by a valuable paper by F. J. Runyon (*Jour. A. M. A.*, May 6), who calls attention to the need of a proper mental attitude toward the power of suggestion, which "runs like a thread through every method of treatment, wise or otherwise." Runyon also notes the dangers of self-deception in medicine and of drawing deductions from imperfect data or without due power of discrimination. While suggestion is often a power for good in the hands of the physician, it is one that may be abused and result in great and lasting harm. It is the main instrument of the pretenders; and Runyon reviews some noted instances of their exploitation of human credulity. He emphasizes that the true practice of medicine lies in the intelligent application of common sense principles and forces.

The old lady, *Medecine*, can hardly be recognized any more, so young and healthy has she become under influence of the youthful spring of the natural sciences.—Helmholtz.

A MEDICAL HERO.

THIS community, none too worshipful of heroes, has recently been very fortunate indeed in the visit of a man of truly heroic mold—Dr. Wilfred T. Grenfell, who works among the deep sea fishermen along the coast of Labrador and Newfoundland. In *Dr. Grenfell's Parish, The Deep Sea Fishermen*, a book by Norman Duncan,* the work to which we allude is sympathetically set forth. Mr. Duncan professes to be no story-teller. His freight is fact—none the less true for being put into vigorous language. The writer employs no Alexandrines or pretty Watteauesque conceits; such would be quite foreign to his subject.

Dr. Grenfell's "parish" is the long, rocky coast, where this physician has labored, and continues to labor, sailing the icy seas in fog and storm and tending the bodies (not forgetting at the same time the souls) of the scattered men and women in a vast and very dreary country, which has become less desolate by reason of his activity. He is an Englishman, this physician, which is greatly to his credit, with a number of other things; and he is commissioned by the "Royal National Mission to Deep Sea Fishermen." He is "a man without fear and full of faith."

Mr. Duncan describes the coast along which this doctor works "naked, rugged, desolate, lying sombre in a mist. There is no inviting stretch of shore the length of it—no sandy beach, no line of shingle, no grassy bank; the sea washes a thousand miles of jagged rock." There are many islands strung along this coast; innumerable little harbors into which a ship may slide through a channel unbelievably narrow and be safe. Then there are storms and wrecks and fogs as thick and so sudden that the afterdeck may be "in soggy gloom and bright sunshine at the bow." This book contains a catalogue of ships that have run upon these rocks or just missed 'em, ships with inspiring names—the "All's Well," the "Right and Tight" and the "Army Lass," whose skipper went upon an iceberg to get a view of the seascape—since the fog lay low and dense. "He clambered up the side of the berg. Near the summit he had to cut his foothold with an axe. This was unfortunate, for he gave this great white mass one blow too many. It split under his feet. He fell headlong into the widening crevice. But he was apparently not a whit the worse for it when his boat's crew picked him up." And there was the "Good Fortune," which, "running through dense fog with a fair high wind and all sail set, struck an iceberg bow on," yet escaped. And Skipper Zachariah of the "Heavenly Rest" who "scorned charts"—like many another skipper in that sea—and steered infallibly by instinct or by "telltales" or doggerel rhymes in which the landmarks and the courses are jingled rudely together.

* The Fleming H. Revell Co.

These and much else that is rich and inspiring and profitable—the doctor's hospitals, his steamings on his little ship "Strathcona," himself upon the bowsprit peering into the fog bank as she dashes along in weather when even Labradormen stay in port, his journeyings with sledge and dogs in winter—are to be found in this excellent book, which will make every medical reader vastly prouder than ever before of his profession.

BIBLIOGRAPHICAL

Merck's 1905 Manual of the Materia Medica.—A Ready-Reference Pocket Book for the Physician and Surgeon. Published by Merck & Co., University Place, New York.

The third, or 1905, edition of Merck's Manual, is a compact little volume stored with such information—revised to date—as gained for its predecessors the title "a valuable pocket reference-book for the active practitioner." The publishers sought the aid and suggestion of many physicians in compiling the Manual, which contains some notable departures from and additions to the previous issue.

Appendicitis: Its History, Anatomy, Clinical Aetiology, Pathology, Symptomatology, Diagnosis, Prognosis, Treatment, Technique of Operation, Complications and Sequels.—By John B. Deaver, M.D., Surgeon-in-Chief to the German Hospital, Philadelphia. Third edition thoroughly revised and enlarged, containing sixty-four full-page plates, eight of which are colored. Philadelphia: P. Blakiston's Son & Co., 1905. Pp. 492; large octavo.

The present edition of this great work has been revised and considerably enlarged.

The Germans are credited with investigation of the toxins produced and absorbed and in endeavors made to obtain immunity, but he says the pathology, certain refinements in diagnosis, and especially surgical technique, have been perfected by American and English surgeons. The opinions expressed are largely based upon the author's personal experience, which covers several thousand cases.

Some important changes are observed, particularly in regard to the use of saline cathartics and in reference to abdominal section and its technique in the presence of general peritonitis. Many plates have been added, some of which are new and all are excellent. The work has already become standard and will be found in the library of every surgeon.

The Development of the Human Body. A Manual of Human Embryology.—By J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy in the University of Michigan. Second edition, revised and enlarged; with two hundred and seventy-two illustrations. Philadelphia: P. Blakiston's Son & Co., 1904. Pp. 539; octavo. Price, \$3.00.

The study of this difficult subject for the student to understand, has been very much lightened by the bringing together by the author, information regarding the causes which have determined the structure and relations of the parts of the body, thereby binding the parts together in a continuous whole by giving the reason why things are so. The great key to the significance of the structure and relations of organs is their development and the author has given a concise statement of this process, well suited to the student about to

enter upon the study of anatomy. In the present edition the work has been revised and brought down to date.

International Clinics.—A Quarterly of Illustrated Clinical Lectures, and Especially Prepared Original Articles in the Various Departments of Medicine and Surgery by Leading Members of the Profession Throughout the World. Edited by A. O. J. Kelly, A.M., M.D. Vol. I; fifteenth series, 1905. Philadelphia and London: J. B. Lippincott Co. Price, \$2.00. Pp. 312; octavo.

This volume is claimed, by those who ought to know, to be the best one that has been issued, and as we glance through its pages we are inclined to think it is, and how it can be published at that price is a question!

The subjects considered are of the greatest importance and the treatment afforded by the eminent authors is of a classical character. One hundred and ten pages are devoted to the progress of medicine during 1904, covering a vast variety of interesting material.

Year books of this kind are of the greatest utility, and no library can be complete without them.

Diseases of the Heart and Aorta.—By Thomas E. Satterthwaite, M.D., Professor of Medicine in the New York Post-Graduate Medical School, Consulting Physician to the Post-Graduate, Orthopedic and Babies' Hospitals, President of the Medical Association of the Greater City of New York. New York: E. R. Pelton, 1905. Pp. 304; octavo.

This volume is based upon a series of articles, which originally appeared in our periodical literature, but has been revised and considerable new matter added. The author has thus placed before the general practitioner a brief, simple but practical presentment of cardiac and aortic affections, from his personal experience. The text is written from the newer view-point and much space is given to modern methods of treatment. The general practitioner will find it a useful addition in his everyday work, as it will help him to manage the cases of which it treats more intelligently and consequently with more satisfaction to all concerned.

Operative Surgery.—By Joseph D. Bryant, M.D., Professor of the Principles and Practice of Surgery, Operative and Clinical Surgery, University and Bellevue Hospital Medical College, Visiting Surgeon to Bellevue and St. Vincent's Hospitals, Consulting Surgeon to the Hospital for Ruptured and Crippled, Woman's Hospital, and Manhattan State Hospital for the Insane, etc. In two 8vo. volumes, 1527 pages. 1793 illustrations, 100 of which are in color. Sold by subscription. Price, cloth, \$10.00. Fourth edition, printed from new plates. Entirely revised and largely rewritten. New York and London: D. Appleton & Co., 1905.

This work has been so thoroughly revised that it may almost be looked upon as new. In the first volume the subjects of anesthesia, shock, ligatures of the innominate artery, opening of the mastoid antrum, intracranial neurotomy and goitre, have been extensively elaborated, as have also the operations for aneurism, and that for facial paralysis, special operations on the head of the humerus, paraffin injection for correcting nasal deformity, and esophagostomy, are some of the recent additions.

In the second volume the additions are of the widest scope. Operations on the stomach and intestines, the newer methods of intestinal anastomosis, in which there

have been material advancements of late have been brought thoroughly up-to-date. There have been added the anastomosis of Connell's suture, O'Hara's forceps, Coffey's crushable potato bobbin, Harrington's segmented rings, Lundholm's forceps and McGraw's elastic ligature; also McGraw's recent method of colectomy, Moynihan's gastro-enterostomy, Mayo's pylorotomy and Finney's pyloroplasty have been added. Gastropexy, gastric ulcer, epilepsy, cholecystectomy, hepatic abscess and drainage of the bile ducts have been largely amplified. These subjects are all illustrated with new drawings and made as interesting as possible, in Dr. Bryant's clear and concise language. There is a vast amount of original matter to be found here.

The changes and additions are too numerous to mention, but we ought to note that special pains have been taken to give the "results of operations," so important to the practitioner.

This work stands in the very front rank of text-books and books of reference, and it can be depended upon as being thoroughly up-to-date.

Practical Problems of Diet and Nutrition.—By Max Einhorn, M.D., Professor of Medicine at the New York Postgraduate Medical School and Hospital and Visiting Physician to the German Hospital, New York. New York: William Wood & Co., 1905, pp. 64, 12mo. Price, 75 cents.

The author well and truly says, that the knowledge of nutrition and diet, should be the A, B, C, of the physiologist and the physician, without which, no rational treatment of any disease is possible. This little book consists of a collection of papers which have already appeared in periodical literature, and it is convenient to have them in this form for reference. The author emphasizes the paramount importance of a sufficient nutrition.

Surgical Diagnosis.—A Manual for Practitioners of Medicine and Surgery. By Otto G. T. Kiliani, M.D., Surgeon to the German Hospital, member of the New York Surgical Society, of the Surgical Society of Berlin (Germany), etc. Illustrated by fifty-nine full page plates, and by engravings in the text. Octavo, 466 pp., muslin, \$4.50, half morocco, \$5.50 net. New York: William Wood and Company.

The most popular work on this subject ever published in this country was Dr. A. L. Ranney's "Surgical Diagnosis," published twenty-five years ago. The success of that book is the *raison d'être* for the present work, and the features which made Ranney's book so popular have been remembered in the production of this volume.

The author's aim all through the book has been to combine a high degree of scientific accuracy and good sense, with a practical presentation of the subject and the terse style that the busy practitioner especially demands in a reference book of this sort.

The object of this book is twofold: to describe, as exactly as possible, the symptoms peculiar to a disease, on which a diagnosis can be based, and, wherever feasible, to show how to observe these symptoms.

The operations which may become necessary and the selection of the particular operation, as well as the prognosis, have been mentioned, only in so far as it is important for the practitioner to know them when proposing operations to his patient.

The book is exquisitely illustrated. A valuable feature is the large number of tables of symptoms, differential diagnosis, etc.

The author's large and varied experience entitles him to speak with authority on the subject, and the eminently practical nature of the work is apparent on every page.

Consumption: Its Relation to Man and His Civilization.—By John Bessner Huber, M.D., is in press and announced to appear shortly by J. B. Lippincott Company, Philadelphia.

In this work the author will furnish a comprehensive exposition of the effect which consumption has had upon civilization, and a consideration of its relation to human affairs. It is hoped, moreover, that it will be found an adequate if not exhaustive text-book concerning this disease.

The book is addressed to the physician and the layman, the purely technical portion being placed in appendices. The publisher will send circular announcement upon request.

Static, High Frequency, Radio, Photo and Radium Therapy.—By William Harvey King, M.D., LL. D., Author of *Electricity in Medicine and Surgery*; Head of Clinic of Physical Therapeutics at the Flower Hospital, etc., etc. New York: Boericke and Runyon, 1905, 12mo, pp. 291.

This little book covers only the subjects given on its title-page, not claiming to be a treatise on the general subject of electro-therapy. The subjects are discussed at much greater length than they would be in a general work, are well digested and adapted to the use of the busy practitioner. The author has assumed a conservative position, and his statements appear to be reliable. Any reader interested in the matters of which it treats, will certainly desire to possess this up-to-date book.

The Detection of Poisons and Strong Drugs, Including the Quantitative Estimation of Medicinal Principles in Certain Crude Materials.—By Dr. Wilhelm Autenrieth, Professor in the University of Freiburg. Authorized translation from the third enlarged German edition. By William H. Warren, Ph.D., Professor of Chemistry, Medical Department of Washington University, St. Louis, Mo. Seventeen illustrations. Philadelphia: P. Blakiston's Son & Co., 1905. Pp. 222; octavo. Price, \$1.50.

This is a concise laboratory-guide to toxicological analysis, for students of medicine and pharmacy, and only the more important organic poisons which can be easily detected have been included. The last chapter deals with the quantitative estimation of certain active principles in crude materials used in medicine, etc. The detection of blood has been briefly considered, and finally the biological detection of blood has been added to give the book completeness.

Mechanical Vibration and Its Therapeutic Application.—By M. L. H. Arnold Snow, M.D., Professor of Mechanical Vibration Therapy in the New York School of Physical Therapeutics, Late Assistant in Electro-Therapeutics and Diseases of the Nervous System in the New York Post-Graduate Medical School, etc. New York: The Scientific Authors' Publishing Co., 1904. 297 octavo pp.

This book has been written to call attention to the fundamental principles which will enhance the value of mechanical vibration, not only in its present therapeutic application, but in the important field which the author thinks will be opened to it in the future. The book will be found useful by those who employ this form of treatment.

CORRESPONDENCE

AN IDEAL LIFE WORTHY OF EMULATION.

To the Editor of the MEDICAL TIMES:

Dr. Thomas H. Manley was born in New England of Irish parents. His claim to be called an Irish Yankee was allowed, a thing of which he was very proud and always smiled good-humoredly when I called his attention to it.

Born in humble circumstances and left a half-orphan when quite young—was an immense advantage to him. This apparent disaster proved a blessing in disguise and was a character-developer. It made him raise his hand and show his colors, and at an early day express his preference for something. It was the profession of medicine.

Had Dr. Manley a rich father, this society might not now be in existence, nor maybe never would have had an existence, as he was a pioneer and a principal in founding it. Most of us, members now, came later, and have little idea of the Titanic struggle Thomas H. Manley made to endow it with life, and once the spark was kindled to keep the fire glowing.

I say rich father, that as a rule means a leisurely son—one not intensely interested in developing his gray matter. Then the subject of my sketch to-night was in his early life bequeathed the rich heritage of poverty, the greatest character-developer of the age. It, as I said, will make a boy show his colors and test his mettle. Thomas H. Manley was tested and in the trial was not found wanting.

It would be foreign to the purpose of the writer to go into the history of self-made men, but he will say: Take away from the progress of the world what has been accomplished in the various fields of human activity in the last fifty years by self-made men and there is very little of achievement or progress left. Dr. Manly was a shining light among those self-made men.

Behind in the early stage of the race, he rapidly came up with the leaders, set the pace, and was found at the front when the bugle blast was blown that ended his earthly career.

Dr. Manley was comparatively a young man when he died, Dr. Osler to the contrary, notwithstanding. His work was well done but only half-completed when he left us, and inspired by his example let us bestir ourselves and take up the work where he laid it down, and show by our zeal and intelligence in furthering its progress that we are worthy to follow in his footsteps. His was a worthy example, now let us follow.

To a fine physique and engaging personality, Dr. Manley added an inexhaustible store of professional and miscellaneous knowledge acquired by reading and reflection, qualities that do not always accompany each other. In himself was combined a library rich with the thoughts of great lights present and passed off the stage.

He was not, like most members of the profession he loved and honored, deficient in the knowledge of things not immediately concerned in his professional work.

As a surgeon, Dr. Manley was recognized more as a director-in-chief and organizer of ways and means to accomplish a desired end, than as a subordinate operating in a limited field, hampered by conditions he was helpless to remedy. He was the commander-in-chief,

overlooking the field, rather than the *division-general*, with one idea and purpose to accomplish, the mission on which he was sent.

The subject of my sketch was widely read on medical and surgical literature. On his office-table were regular weekly editions of German and French medical literature. Those foreign weeklies bore evidence of much handling—the leaves were all cut and many times turned, showing very plainly that our lamented and beloved friend was eager to know more and more, and all there was to be known of a profession he used to speak to me of with pride. His weekly journals of which he had many, were read and well-digested, while most of our weeklies are on our tables with the wrappers still upon them awaiting our convenience to be read, though we have not half as much to do as he had nor our time half as valuable as his. The truth is Dr. Manley was a voracious and constant reader. He would any time rather read than eat and when crowded with work, which was practically always, he robbed himself of sleep, to be certain there was no new discovery in surgery with which he was not acquainted, nor no drug left untried that might the better benefit a fellow-creature lying in *extremis* on his cot, alone, though in the midst of activities, turmoil and suffering incidental to injury—and hospital isolation.

As a writer, Dr. Manley was not second to the best. He was clear, concise, forceful and expressive and therefore readable. His compositions never had a soporific effect on his hearers as you, my fellow-members of this society, can attest, a quality for which I know you loved him the more. His articles from time to time as they appeared in the leading medical journals on abdominal surgery were widely read and favorably commented on by the most distinguished surgeons of the day.

His brochures on hernia are masterpieces of surgical literature and will survive the ravages of time, when most of the volumes of the present day with their writers will be forgotten. Why? Because he has told something tangible, practical, about a subject full of disappointment and uncertainty.

He has shown the surgical world how to build a wall to shut in the intestine—heretofore held in by a clumsy truss and with much pain to the wearer of it. To build a wall, a buttress, in a region abounding in quicksand and poor in means of support is a problem about which Dr. Manley had much concern, thought and worry, but to his honor and the triumph of surgery, he solved it.

Not to say a word on the social side of Dr. Manley would be to leave this brief account of his life, at best imperfect, more imperfect still. He was the life of any company in which he was placed if the company were acceptable to him. When a period of repose or intermission between topics of conversation occurred, the presence of mind and wit of Dr. Manly relieved the occasion of the imputation of being dull. It has passed into legend that where MacGregor sat was the head of the table, but it can be said with truth that where Dr. Manley sat was mirth and wit seasoned by ripe judgment and rare perception as to what should or should not obtain or prevail. On the spur of the moment and quick as a lightning flash he was ready to fill a void, or help a fellow who floundered or lost the thread of his discourse.

This all-round good fellow could not go beyond his

*Remarks before the Celtic Medical Society.

depth as many of us gentlemen know to our discomfort and humiliation, as he had the faculty of accommodating himself to the conditions in which he happened to be placed, and regardless of the predicament, extricated himself without effort.

His eye, though uncommonly keen and penetrating, was no keener than the brain behind it. That brain, no longer living matter and pulsating for us, was as quick as his eye and grasped a subject and held it with bull-dog pertinacity until every idea and feature worth considering was squeezed out and examined with great exactness.

Dr. Manley was as strong in debate as he was in repartee. In argument he had an object in view and it was to overwhelm his antagonist, which he almost invariably did. As a debater he was eloquent, able and ready. He quickly saw the flaw in his adversary's argument and not only defeated him but convinced him he was wrong.

Our society, consisting of fifty members, had three orators with talents conspicuous, and the foremost, the very foremost of those three, was our lamented friend, Dr. Manley.

When I heard of his death, I had premonitions of disaster for the Celtic Medical Society, as his loss is irreparable. But on calmly looking the situation in the face to-day, I have hope, since all its members have pledged themselves anew and clasped hands over Dr. Manley's grave, that if only for his memory and sake, the Celtic Medical Society *shall not perish*.

Dr. Manley, had he entered one of the other learned professions—law or divinity—would undoubtedly be a shining light and at the front, as the versatility of his knowledge and his mental depth and clearness with judicial and argumentative temperament would at once command attention and respect. But his lot was cast with us and to the medical profession he was an exemplar and mentor while to the Celtic Society he was its anchor and hope.

But fellows of this society, however, we may miss him and mourn his loss, we are not unmindful that there are others who suffer, and hearts to-night bleeding for lack of the presence and cheering words of one who was wont to bring sunshine and good cheer to the social hearth. There the blow strikes hardest. There is a chair vacant that cannot be filled. There the faithful partner of our friend's years of struggle and triumph sits weeping. But she does not weep alone, for in those, now the hours of her agony her hands are supported by a sublime hope and the ministrations of four loving daughters, the priceless heritage and legacy of love bequeathed by him to the woman in whom his hopes and ambitions were centered.

To her the fellows of this Society extend their sympathies in the name of our friend, a good man—her husband, who knew neither hardship nor toil, while laboring with a ceaseless, tireless industry to advance the interests of the Celtic Medical Society and to keep it at the front in the fierce struggle, a struggle where defeat meant death while success perhaps meant honor and emolument.

In temperament, Dr. Manley was sanguine and hopeful. In every conceivable condition of life, however, wretched and discouraging, he saw a brighter side and the kindly light. He was the soul of optimism and awaited with confidence the future as it was evolved fresh from the loom of destiny.

He believed that happiness was within the reach of all and that failing to attain it was evidence of the lack of development and the sore need of further effort.

Good intentions were valued at what they could bring by this apostle of intense and firm convictions. His gospel was to put those intentions into practice. He had a profound contempt for a man without convictions. For one to vacillate, hesitate, when the road to duty was clear was to him high treason, and whether an evidence of degeneracy or treason, he was to be swept away, or brushed aside to make room for the victor, the man who dared to try.

Gentlemen, this is the type of man who has surrendered. But his surrender is not ignominious. He was defeated only after a desperate struggle and in honorable combat, with an unequal foe—a foe with which all of us will have to do battle single-handed and in turn some day.

Here, to-night, a chair is vacant, and a strong voice hushed forever—a voice we were wont to listen to with pride and profit—a voice that prided in denouncing wrong and that gloried in championing the right as he saw it.

Let us drape his chair with tears, and crown his brow with the wreath of good work well done, while we stifle a sigh and cherish a hope that he has only gone on before us to receive his reward as one of the faithful and be counted among the elect. May the earth lie lightly on his grave. His motto: *Sola nobilitas virtus*.

THOMAS J. HILLIS, M.D.

"JAUNDICE IN TYPHOID FEVER."

To the Editor, MEDICAL TIMES:

In my article "Jaundice in Typhoid Fever," (published in your April issue), my attention was called by Dr. David Reisman to an error through which his name was attached to the "yellow palm" sign in typhoid fever. He very kindly informs me that the credit for this discovery rightly belong to Philipowitz.

Will you kindly favor me by informing your readers of this error in your next? Thanking you in advance, I have the honor to be,
Very truly yours,
JULIUS H. COMROE, M.D.

Duodenal ulcer was operated upon by Mayo, W. J., (*Annals of Surgery*) in 58 cases, which he divides into groups: First, acute perforation, six cases, two deaths; second, hemorrhage, one fatal case; third, chronic duodenal ulcer, with gastric complications, twenty-eight cases, one death; fourth, chronic perforating ulcer, with gall-bladder and liver complications, eleven cases, one re-operation, no deaths; fifth, chronic ulcer requiring operation for relief of pain and distress, thirteen cases, no deaths. Mayo thinks posterior gastroenterostomy would be the operation of choice in chronic cases; but leaves room for further consideration. Even with a large gastroenterostomy food will pass out by preference through a patent pylorus by muscular action, the apparent gravity advantage of a low-point wound being equalized by intra-abdominal tension. Closure of the pylorus to divert all the food to the artificial outlet is under consideration by Mayo, who thinks it should be done in the large majority of cases if there is no cicatricial obstruction.

THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.

The eighth annual meeting was held at the New York Academy of Medicine, Monday and Tuesday, April 24-25, 1905. The Association now numbers 35 members, in spite of the utmost conservatism in the admission of new members. While not requiring close limitation of practice, considerable attainments in scientific and clinical lines dealing with the digestive organs and functions, are required and it is said that less than a third of the total candidates for membership have been accepted. On the other hand, guests are freely admitted to the meeting the program usually includes some non-members. A brief résumé of the program as actually presented, follows:

1. President's Address. S. J. Meltzer, New York. None of the active members have died, but the president reviewed the necrology among the foreign, corresponding and honorary members.

2. Recent Advances in the Knowledge of the Movements and Innervation of the Alimentary Canal. Walter B. Cannon, Boston. In the esophagus and other parts without digestive or absorptive function, the peristaltic wave is comparatively rapid. In the stomach, the resistance of the pylorus and, in the colon, the antiperistaltic wave against the ileocecal valve and sphincter, repeatedly bring the contents into contact with the surface and provide for thorough admixture. Regurgitation through the cardia, as high as the heart and return peristalsis, repeatedly occurs in dogs, becoming less frequent toward the close of gastric digestion. The cardiac half of the stomach is comparatively inactive but the peristalsis of the remainder is repeated about every 20 seconds, as has been shown by Roux by X-rays, using bismuth, and as may be verified by auscultation of the stomach when the food contains considerable air. Free acid is probably the exciting cause of pyloric relaxation while acidity in the duodenum or an excess of fat in the duodenum causes pyloric closure. Carbohydrates begin to leave the stomach in ten minutes and reach a maximum in the duodenum in 2 hours, while proteids are delayed for half an hour or more and then leave the stomach very slowly. In the small intestine, there are no true sphincters but rhythmic segmentation occurs and the food may be worked over 1,000-1,500 times, before moving onward. The wave occurs every 7-8 seconds, judging by auscultation. The lower half of the large intestine contains comparatively solid matter, whereas the proximal half contains a liquid mass subject to antiperistaltic waves, providing for the mixture with juices from the small intestine and absorption. The subject of innervation was also discussed.

3. Recent Advances in the Knowledge of the Chemical Processes of Digestion. Lafayette B. Mendel, New Haven. This paper was really an extensive review of the chemistry of digestion, with special reference to erepsin, invertin, antienzymes and the specific enzymes. For instance, lactase is formed only when lactose is given, and only when given by swallowing, and it gradually increases under a milk diet.

4. Is the Milk-coagulating and the Proteolytic Effect of Gastric Juice due to One and the Same Enzyme? John C. Hemmeter, Baltimore. The writer reviewed Pawlow's claim and pointed out some fallacies and strongly intimated that the older conception of pepsin and rennin as separate ferments must stand.

5. The F. A. Hoffman-Ostwald Method of Determining the free HCl of the Gastric Juice by Dissocia-

tion of Methyl Acetate. Same author. Hemmeter has considerably modified the original method and has recourse to titrations with phenolphthalein after 4 hours' exposure to allow complete dissociation of methyl acetate. Dissociation by lactic and other fermentation acids is always too minute to affect the result appreciably. Four tests are made to obtain the necessary data, as follows:

- I. 10 c.c. gastric filtrate;
 - II. Same plus 2 c.c. methyl acetate;
 - III. 10 c.c. water plus 2 c.c. methyl acetate;
 - IV. 10 c.c. N/40 HCl plus 2 c.c. methyl acetate;
- II - (I + III) = x, = acetic acid liberated by HCl of gastric juice. IV - (2.5 × III) = y, = acetic acid liberated by water.

Then follows the proportion, $y : x :: 0.091 : z$, z being the HCl sought.

6. The Immediate Effect of Biliary Retention on the Gastric Secretion. Julius Friedenwald, Baltimore. This paper was read in the author's absence. He had noticed a marked tendency to increased secretion of HCl and of the total gastric juice, probably due to an asthenic state of the gastric glands.

7. Diverticulum of the Oesophagus with Report of Cases. Wm. Gerry Morgan, Washington. This paper was also read in the author's absence. It was a very complete summary of the subject. The original observations were not reached, on accounts of the time limit.

8. I. Adler of New York reported a case of profuse gastro-enteric hemorrhage, with death from secondary anemia. No lesions were found postmortem in any of the abdominal viscera excepting evidences of vascular degeneration. Dr. Morris Manges mentioned a similar case in which a small, sharply limited esophageal varix was discovered. Dr. Adler thought that the palpation of the esophagus during gastrotomy and the repeated passage of the stomach tube excluded this possibility in his case.

9. Further Remarks on Ischochymia and Its Treatment. Max Einhorn, New York. In a considerable series of new cases, 1.45% were of ischochymia of all kinds, 0.7% of non-malignant ischochymia. The latter cases numbered 9. In two or three cases, there were tumors at the pylorus, probably tuberculous. Lavage and dietetic management relieved some cases. When medical treatment fails, operation, usually gastro-enterostomy, is indicated. The surgical mortality is 5-25%, 10% being a fair average. Surgical treatment is also indicated for continuous acid supersecretion.

10. Sarcoma of the Stomach with Report of Two Cases. Morris Manges, New York. About 75 cases are recorded. The prognosis of operation is somewhat better than for carcinoma. The favorite site is the curvatures, especially the greater, while the pylorus is quite rarely involved. On account of the lack of involvement of the orifices and of the mucous membrane, diagnosis is difficult. The tumors may reach a weight of two pounds. Dr. Brooks reported 4 cases in 1,200 serial necropsies, one having been diagnosed clinically.

11. The Relations of Some of the Metabolic Disorders to Intestinal Disorders. T. B. Fletcher, Baltimore. Garrod's view of Alkaptonuria as a physiologic sport, was accepted and specimens of homogentisate of zinc were shown. Ochronosis usually occurs as a manifestation of Alkaptonuria. Cystinuria is probably also a physiologic sport.

12. Diagnosis of Gastric Area with Special Reference

to Transposition of Viscera, Sling Stomach and Hour-Glass Stomach. A. L. Benedict, Buffalo. The speaker emphasized the value and convenience of examinations by auscultatory percussion and claimed to have been the first to use bismuth with the X-rays. Diaphany was not regarded as especially valuable. Auscultation of esophageal sounds was especially valuable to determine whether an area already mapped out, was that of the stomach or of part of the colon. The case used to illustrate Hour-Glass Stomach was really one of old ulcer at the pylorus in which cancerous degeneration was shown microscopically, the lower pouch being dilated duodenum. The incurved area had been demonstrated during life both by auscultatory percussion and X-rays and was verified at the necropsy.

13. Comparison of the Methods of Lavage with the Syphon Tube and Kutner Bulbs. John P. Sawyer, Cleveland. The latter method, in which suction by rubber bulbs is employed, was shown by numerous experiments to be much more thorough and was used not only for extracting test meals but for lavage, in many cases.

14. Occult Blood in Feces. J. Dutton Steele, Philadelphia. Old turpentine was to be preferred to hydrogen peroxid in employing the guaiac test but the reaction with aloin was more satisfactory. The stools of certain days could be separated by administering charcoal. One meal of red meat a day gives a faint reaction, 2 such meals a plain reaction. Various proprietary meat extracts give the reaction but not inorganic iron. Meat should be cut out of the diet for at least 24 hours before making the test, and vegetables rich in chlorophyll, may obscure the test. In gastric and duodenal ulcers, occult blood is usually found every few days, while in cancer, it is present in almost every passage. When the blood persists under milk diet, it is rather characteristic of cancer. The hope of foretelling massive hemorrhage had not been realized and the test had proved somewhat disappointing as to practical results. Of 15 typhoid cases, 8 showed blood during second and third weeks.

15. A Case of Gastrocolic Fistula. J. Kaufmann, New York. The patient had a long history of gastric trouble and a fistula was made between the stomach and jejunum. Subsequently, the colon became adherent to and opened into the stomach and fecal vomiting occurred. After exising the fistulous openings from the colon into the stomach and the jejunum, the lumen of the colon was so narrowed that short-circuiting became necessary, but the patient died a few days after operation.

16. Etiology and Serum Treatment of Dysentery. Wm. H. Park, New York. Amoebic dysentery, especially acute, is exceedingly rare in this climate. Throughout the northern temperate zone, clinical acute dysentery, with mucus, blood and tenesmus, is as regularly marked by bacilli of the dysentery group as is clinical diphtheria by the Klebs-Löffler bacillus. In the great epidemics of dysentery, the world over, the Shiga bacillus is found. In lesser epidemics, various bacilli are found, closely related but having specific differences. These may be termed para-dysenteric bacilli. Their relation to the true Shiga bacillus and with one another, is shown by the presence of a general agglutination, reaction and protection by serums but for each variety, the specific reactions are more marked.

There is now nearly universal agreement that the

Shiga bacillus is rarely found in summer diarrhea or atypic dysentery. The more closely these cases approach the dysenteric type, the more likely are para-dysenteric bacilli to be found. In cases not of dysenteric type, the bacilli of the dysenteric group are either not found at all or not the characteristic germs.

As to the practical use of the serum, many mild cases of true dysentery yielded to other treatment very promptly. However, the use of 20 c.c. of serum every day for 3-5 days was advised for typical dysenteric cases and it seemed to act favorably. The serum is bactericidal and not antitoxic, and cannot be standardized. In the summer diarrheas, the antidysenteric serum does neither harm nor good.

John Henry Huddleston, of New York, led the discussion. He stated that in cases in private practice, he had been absolutely unable to find any obvious cause.

17. Clinical Features and Medical Treatment of the Benign Stenoses of the Pylorus. Henry L. Elsner, Syracuse. In general, we should hesitate to regard gastric troubles as functional, but should look for an organic basis. A very comprehensive discussion was given, to which justice cannot be given in a brief abstract.

18. Surgical Treatment of Same. George Emerson Brewer, of New York, illustrated, with diagrams, the various operations proposed, the later modifications aiming especially at avoiding the well-known vicious circle of regurgitation. The latest, simplest and most satisfactory operation is to unite the jejunum as near the duodenum as possible, to the lowest part of the stomach, without any further anastomosis. Several gentlemen participated in the discussion.

19. Onomatologia Gastrica. A. Rose, New York. The reader criticized many terms introduced by men whose ignorance of Greek had led to very amusing meanings for some words, and to hybrid words. He suggested that new terms should be submitted to the faculty of the University of Athens.

The officers of the Association for the following year are as follows: President, Henry Wald Bettman, of Cincinnati; Vice-Presidents, S. W. Lambert, New York, and John P. Sawyer, Cleveland; Secretary and Treasurer, Charles D. Aaron, Detroit; Councilors, A. L. Benedict, Buffalo, E. Quintard, New York, J. Kaufmann, New York.

Acne requires vigorous use of the curet, the acne lancet and the comedo expressor by the physician every fifth day; while meantime the patient applies at least every night some sulphur preparation, preferably "lotio alba" (zinc sulphate and potassium sulphuret anã 3i-ii with rosewater up to 3iv). This is to be well shaken before use. Resorcin and sulphur soap are also appropriate. G. T. Jackson (*Med. Rec.*, March 18, '05) would limit the use of the Roentgen rays to intractable cases; great caution is here required to prevent doing harm. This affection is even commoner than eczema; and while it is often stubborn most cases can be greatly benefited in a short time and very many of them promptly cured. Women particularly, in the hope that pristine comeliness may be restored to their faces, will endure very cruel curetting, if they become convinced of its benefit. There must be attention to the patient's general health—baths, diet, exercise, attention to hygiene; particularly in young women is the question of the normal menstrual function to be considered. Acne in such cases is often given to exacerbation at this period.

RETROSPECTIVE THERAPEUTICS

CANCER PROBLEMS.

The increased interest taken in cancer has led to several curious phenomena, for example, there has been an alleged increase in cancer mortality in late years, which in fact is probably due to more perfect diagnosis and notification in death certificates. Yet, so great an authority as Sir William Banks believes that an actual increase has occurred.

As regards the cause of cancer, there are two opposing groups still; those who regard the disease as due to extrinsic causes—practically to a parasite; and those who are of opinion that the occurrence of malignant growths can be explained by purely intrinsic causes, inherent within the normal cell. Coley, a supporter of the parasitic theory, bases his belief on the following clinical grounds: (1) The increase of cancer in recent years is difficult to explain on any other grounds; (2) The local prevalence of cancer in certain districts is in favor of the same view; (3) The power of cancerous tissues or fluids to infect neighboring tissues by contact can also be best explained on the parasitic theory; (4) So also can those cases in which one individual appears to have been directly infected from another, while the laboratory evidence in favor of this view is founded upon the finding of apparently parasitic bodies in cancerous growths. Some have regarded these as protozoa, others as blastomycetes, and many high authorities have pronounced them to be parasites and not cell degenerations; but proof that these are the cause of cancer is still lacking, largely because it is so difficult to obtain the bodies in pure culture with a view to inoculation experiments. San Felice obtained pure cultures of blastomycetes from cancer; with cultures of a similar organism from fruit he inoculated a dog, and produced a typical adeno-carcinoma with metastases.

The majority of cases of uterine cancer, when they consult the surgeon, are too far advanced for the hope of a radical cure, but German statistics show that this is less true now than it was ten years ago. This is hopeful, showing that the teaching of surgeons concerning the necessity of early diagnosis and early operation for cancer is having its effect. The percentage of cases of cancer of the cervix remaining free from recurrence at the end of five years, after vaginal hysterectomy, is variously given, but it may be claimed confidently that at least 10 per cent. of the cases operated upon remain free from the disease at the end of five years, and may be considered cured; even better results are claimed by some surgeons.

The results of hysterectomy whether vaginal or abdominal for carcinoma of the uterus are much more satisfactory; when this point is brought out in statistics it is shown that about 75 per cent. of the cases are permanently cured; hence, for timely operations for uterine carcinoma a good prognosis may be given. The abdominal radical hysterectomy for cancer of the uterus, involving the removal of the pelvic glands and the parametria along the uterus, is still upon trial. Its primary mortality is probably double that of vaginal hysterectomy, and it has not been practiced long enough for permanent conclusions as to the results which may be thus secured, but theoretically it should give better results than vaginal hysterectomy, because the parametria and at least some of the lymphatic glands of the pelvis are removed, although in practice this is not

always done. Aside from theoretical considerations the most encouraging report concerning the operation is the statement of Wertheim, that after two and a half years' experience he has not met with recurrence. There is a resemblance between senile endometritis and incipient uterine carcinoma; discharge is the first symptom, together with pain and general constitutional disturbance, if the cervix is obstructed; this discharge is sero-purulent, less glutinous than that of leucorrhœa, and microscopic examination is necessary to differentiate it from that of specific disease and carcinoma. Gastric disturbances and a dry bronzed skin often impart a cachectic appearance suggestive of malignant disease. From adenoma senile endometritis is distinguished by the absence of metrorrhagia. If the disease does not extend beyond the cervix, astringent douches are efficient, but should the whole of the interior of the uterus be involved it requires the free application of iodoform. The connection of displacements or cervical stricture is important if these conditions are present, and for the latter gradual dilatation and drainage are required, avoiding rapid dilatation on account of the ease with which the senile uterus may be torn.

In studying cancer of the cervix uteri, Balloch concludes that the present status of operative intervention is that it is practically useless in cases as they usually come under the notice of the surgeon. In the operable cases the only procedure offering any reasonable prospect of a permanent cure is the so-called radical operation by the abdominal route. Vaginal hysterectomy is useless as a radical operation, but has a place as a palliative measure; Balloch urges that the upper part of the vagina is deserving of more attention, from the standpoint of recurrence. The most promising outlook for these cases lies in early diagnosis, combined with thorough and complete operative measures.

Nason analyzed the report on 5,000 cases of death from malignant disease by a committee of the Birmingham and Midland Counties Branch of the British Medical Association. The following are the more certain predisposing causes: (1) Prolonged local irritation, due to various causes, setting up local inflammatory changes in the irritated tissue. (2) The immediate or after-effects of direct and sudden injury whether mechanical, thermal or chemical. (3) Syphilis, and possibly other constitutional diseases which are associated with local tissue changes. (4) The tissue degenerations of advancing years, varying with the age. (5) Individual proclivity. (6) The presence of foetal remnants or "cell rests." (7) The residence in the neighborhood of a sodden and sewage-soaked soil. These conditions lower the resisting powers of the individual cells and under such conditions the invasion of a parasitic organism would be expected to have most chance of success. If such exists, how does it gain entrance to the body? It may take place in one or more of the following ways: (1) Absorption from the intestinal tract; (2) Absorption from the respiratory tract; (3) Direct inoculation (a) through abrasion of skin or mucous membrane; (b) by the bites of blood-sucking insects.

The attitude of the profession in all directions is one of hopefulness. With no especially new methods of treatment in tuberculosis, cancer and other chronic diseases a vast amount of study is being devoted to these subjects and with such an attitude of research and expectancy the battle is already half won.

Eclampsia is a condition always grave, which may at any time confront the general practitioner who does obstetrical work. It is due to a toxin which probably has its origin in the liver. The development is maternal rather than fetal (Allen, *Am. Jour. Obst.* February, '05). Premonitory symptoms are always present; the most constant and most important of these is frontal headache. The diagnosis of this toxemia should be made early; and this can be done if the patient is under constant observation, as she should be. The mortality should not exceed twenty per cent. When premonitory symptoms appear the uterus should be emptied as rapidly as is consistent with cleanliness and the integrity of the soft parts. From 300 to 700 cubic centimetres of blood should be drawn and then from 500 to 1,000 cubic centimetres of salt solution should be infused according to the quantity of blood withdrawn and the character of the pulse. This operation may have to be repeated. Morphine, grain $\frac{1}{4}$, may be given to relax the muscular system, and Croton Oil, 1 to 2 drops, in olive oil, 1 to 2 drachms, followed by magnesium sulphate, \mathfrak{zss} , in saturated solution until free purging has resulted. The diet should be limited to milk and water. Other treatment should be expectant.

Arthritis deformans and arteriosclerosis appear closely analogous, in the opinion of Bradford which F. L. Richardson approves (*Bost. Med. and Surg. Jour.*, March 9, '05). Arteriosclerosis has been ascribed to many causes and the manifestations may be very varied. The condition may be widely distributed, or narrowly circumscribed; there may be a condition of hyperplasia only or there may be ulceration, calcification, or even formation of true bone. It cannot be said, because of these numerous manifestations, that we are dealing with many diseases. Why, in one case there is new formation of bone and in another absorption at present is as much unknown as are the varied conditions that give rise to the disease. It is possible that the disease is often the result of some general alteration in the body metabolism.

The Curability of Early Paresis is considered by C. L. Dana (*Jour. A. M. A.*, May 6), who suggests that this affection, like tabes (both parasylphilitic disorders) may be arrested in its early stages. He does not refer here to the well-known remissions of the disease, in which there still remains a certain amount of parietic mental impairment, but he rather means a complete disappearance of all evidence of degenerative changes in the brain. In a number of cases which he reports, having symptoms decidedly indicative of paresis—characteristic mental changes—convulsions, Argyll-Robertson pupil, etc.—these disappeared under treatment, and the patients remained well under observation for various periods. The treatment generally consisted in complete change of life, antisyphilitic medication, preferably hypodermic, hydrotherapy and attention to the general nutrition. Dana thinks there is no *a priori* reason why paresis in its early stages may not be sometimes cured, and he holds that the cases he reports point that way and indicate the importance of an early diagnosis and treatment of this disease which has heretofore been considered incurable.

Tuberculous ascites is treated by Shoemann (*Internat. Jour. Surg.*) as follows: The abdominal wall is punctured with a moderate sized canola and such fluid as escapes spontaneously is evacuated. A sterile iodoform emulsion (one to five parts to glycerin 500) is then injected into the free abdominal cavity, beginning with

1 to 2 c.cm., and increasing the concentration and dosing at each subsequent injection, these being made at intervals of four to eight days. Thus far he has treated seven cases in this manner, all females, in age from two to nineteen years. Apparent cure was obtained in from three to ten weeks. In two cases (children) the serous exudate failed to return after the secondary injection. In the case of a girl of nineteen who suffered with an infiltration of both apices, the fever disappeared after the third injection and the sweats subsided; changes in the pulmonary tissues vanished without leaving behind any perceptible traces. The diagnosis was always confirmed by tuberculin injection. No toxic effects from the iodoform were ever observed. This procedure would seem preferable to laparotomy for this lesion.

The path of infection in pulmonary tuberculosis. Wassermann (*Berl. Klin. Woch.*, November 28, '04) cites a number of cases tending to show that in many cases the infection reaches the lung through the tonsils and pharynx *via* the cervical lymph nodes and the pleura. The pharyngeal mucous membrane allows the bacilli to pass through when there happens to be present some local inflammatory lesion. The cervical glands then become secondarily involved. The infection travels down the lymphatics to the pleura, where it sets up a localized pleuritis, with the formation of adhesions. The bacilli are then able to enter the lung itself. Adhesions form most readily at the apex because in this locality there is less amount of movement during respiration. The preliminary symptoms are usually not observed by the patient, but any involvement of the pleura is noted immediately, and this is very sensitive. The shooting pains in the shoulders are therefore the first things complained of by the patient. Physical signs at the apex are absent, except possibly friction rales. In these opinions Wassermann is now joined by many noted phthisiologists.

The Eyesight of Employees has, since the fatal collision between the Elbe and the Craithie, nine years ago, enlisted the attention of the ophthalmologists of Great Britain, who have tried to convince the Board of Trade that all employees upon whose eyesight the lives of passengers depends, should be subjected to very rigorous examination. In Australia there has been similar agitation. J. W. Barrett and W. F. Orr (*Lancet*, October 29, '04) declare that after the wreck of the P. and O. steamer "Australia," conditions were found by expert ophthalmologists of so startling a nature that the advice of physicians is in future apt to be very closely heeded, in that region, at least. In this case the pilot boarded the "Australia" five miles from Queenscliffe. In entering port two lights must be kept in line or nearly so. The pilot stated that he was breathless from the exertion of boarding, but took charge and used his binoculars. The sea was not high, though it was blowing hard. Twenty-five minutes after he took charge the steamer struck. The night was dark and the weather "dirty." He subsequently stated that he recollected nothing after the first orders to port the helm, although evidence showed he gave orders to port on three distinct occasions. He had not been drinking and was absolutely sober. After the accident he collapsed, was taken home and put in charge of his physician. He was fifty-nine, with a hypertrophied heart, high blood pressure and arterial sclerosis. His urine contained both albumen and glucose. He was obviously myopic and did not have a satisfactory color discrimination. The accident was due, not to his negli-

gence, but to his physical condition and his ocular deficiency.

Syphilis and Longevity are considered by Dr. James Nevins Hyde (*Medicine*, April, '05), who finds that this disease like variola and tuberculosis may destroy life. This does not coincide, we believe, with the generally accepted opinion. When it is not fatal it may disfigure and mutilate the body to a hideous extent. In any event it is among the most dreadful scourges of humanity, requiring most intelligent and persistent handling on the part of both physician and patient. Inherited syphilis, working destruction of ovum, fetus and infant, has a fatality of between 80 and 90 per cent. The mortality, exceeding that resulting from any of the great plagues of the race, is due to the unprotected condition of the embryo. The percentage of fatality in acquired syphilis has not been accurately determined; it is probably less than two per cent. This fatality results less often from the actual invasion of the disease than from an entailed loss of resistance, by reason of which common agencies of disease produce serious effects, especially in the nervous system. The efficient factors in the production of these effects are fairly well understood—chronic alcoholism, long-continued tobacco narcosis, extreme fatigue, stress and strain, due to severe affliction or business anxieties, the malnutrition that may result from poverty, and the like. If any of these "efficient factors" are absent, the treatment may result brilliantly in perhaps 80 per cent, of acquired cases. The damage wrought by syphilis is not to be measured solely by its fatal issues. The lowering of the standard of average health induced by the disease, the lesions in the skin, bones, testes, liver and other organs, and the moral effects of a disease popularly considered "loathsome" undoubtedly affect the bodily functions, "pave the way for the inroads of other toxins, and possibly lay the foundation for mental degeneration, alienation and even suicide."

Salt as a condiment is considered by the *Lancet* the commonest of all, and yet man practically stands alone amongst animals as a regular consumer of it in the more or less pure state and as a definite adjunct to his food. It is present in most natural food-stuffs, but the amount in the majority of cases would not appear to satisfy man's needs or he would not instinctively add more. Moreover, salt, besides being a condiment, possesses solvent properties which, besides "drawing out" the flavor of foods, facilitates the absorption more particularly of proteid and thus increases tissue metabolism.

The Surgeon's Heart was evinced in the following anecdote from *The St. James Gazette*. A poor man had been treated by his club doctor—a busy, overworked, good-hearted fellow—for glandular enlargements in the neck. The patient came to London where he met a St. Thomas' Hospital surgeon who told him: "You come up to the hospital, you've no glandular swelling there." The case proved one of malignant growth of the thyroid. He consented to operation and Sir William MacCormac took him in hand. "The case was as bad as it possibly could be, and the faintest fraction of error would have meant certain death; but the operation was perfect, one of those performances of which we laymen never dream, but which these inspired giants in life-saving at the hospitals are accomplishing every day of their splendid lives. Early next morning the patient was gently aroused from sleep. He opened his eyes and saw the strong, kindly face of a man beaming

in delight over him. It was the great and wealthy surgeon who had left his bed before six o'clock that bitter morning to come and see this poor, friendless man. The patient is a hale man to-day, and in his part of the world they regard St. Thomas' Hospital as a temple of miracles far more awe-inspiring than any holy well." It is certainly pleasant to see the efforts of the surgeon so gracefully appreciated in the lay press.

The diagnosis of prostatic obstruction should be made in the simplest possible manner (Parker Syme, *Jour. A. M. A.*, November 5, '04). The history should be carefully considered. No examination beyond palpation of the prostate through the rectum should be made, and determination of residual urine by careful introduction of a flexible catheter. Syme considers the use of the cystoscope a thoroughly unwarranted and dangerous procedure; he would not use metal catheters. He operates when there is frequent urination to the exhaustion point, when the use of the catheter is absolutely necessary, when the patient suffers from a marked degree of chronic cystitis, when a bladder stone is caused by the prostatic obstruction, when there is frequently repeated hemorrhage, or if pain is so great as to undermine the health. Syme does not do the Bottini operation and advises against suprapubic incision. He operates entirely through the perineum and through a small median incision. His patients are up in about forty-eight hours. The gauze packing is removed in about twelve to twenty-four hours after the operation, and the drainage tube at the end of forty-eight hours. He then permits his patient to remain out of bed. He has operated in this manner on thirty-four cases with two deaths.

X-Ray treatment of cancer as preferred to the use of the knife was discussed in Berlin at the International Congress called to celebrate the tenth anniversary of Roentgen's discovery. Lassar averred that he has had only three failures in this treatment for cancer in some hundreds of cases, but only where the growths were not deep seated. The ray was ineffective for large growths.

Dr. Robert Koch had a caravan of some seventy men when visiting Morogono in German East Africa. The natives called him "the great medicine man" and were astonished at the size of his expedition, which had for its object the study of the plague and of a fever which is communicated by the papasi or bedbugs; it is not deadly but makes invalids of the victims for weeks. Neither is it deadly, by the way, in civilized countries, though it has been known to incapacitate individuals through whole seasons.

Married men live longest, not in accordance with the perennial minstrel joke "because it only seems longer," but by scientific proof. The mortality among bachelors from 30 to 45 years of age is 27 per cent.; while among married men of the same age it is 18 per cent. For 41 bachelors who attain the age of 40 years, there are 78 married men who reach the same age. The difference is still more striking in persons of advanced age. At 60 years of age there remain but 22 bachelors to 48 married men. At 70, 11 bachelors for 27 married men and at 80, 3 bachelors for 9 married men.

The bill to place osteopaths on an equal footing with regular physicians in New York state has failed of passage, but it is quite evident, from their pernicious activity, that something like eternal vigilance is the price the profession will have to pay if these shrewd manipulators are to be kept permanently from being estab-

lished.

The tuning fork has been used as an instrument of precision in physical diagnosis by R. N. Wilson (*Medical Notes and Queries*), who considers it of great assistance in discriminating between a cavity and other conditions simulating it. If this instrument be set in fairly rapid vibration and the end of the handle be placed lightly upon the thorax, and then be made to approach the bell of the stethoscope which rests upon healthy lung tissue, the note will go through a striking series of changes. In passing the fork from normal to consolidated tissue the pitch rises and the note becomes much clearer, and may indeed become evident for the first time. If it next passes over a superficial cavity the note becomes clear, sweet and musical. This character is never simulated by any other condition.

Some Chinese medicines are described by S. Synge (*Dublin Jour. of Med. Sc.*, March, '05). Many absurd beliefs recorded in the Chinese *Materia Medica* are set forth. Sulphate of iron is said to go at once to the liver and gall bladder and is good when the liver is inflamed; it is also good for cough, epilepsy, hematuria, etc.; it is said to be obtained from copper pits and to be the fluid part of the copper, thus enabling it to go to the liver. The color of the best preparation should resemble the inside of the mouth of a green frog. The human placenta is said to cure weakness, thinness, wasting diseases, madness and epilepsy; it should be taken from a healthy primipara, washed in a running brook, then boiled, after which it may be toasted or powdered, or eaten after the boiling with rice. Powdered tiger bones are thought to give strength. The urine obtained from the white horse, the ass and children is given in fevers. Another absurdity recorded is that when a placenta does not come away it goes up into the woman's chest and suffocates her. It is also believed that the milk comes into a mother's breast with the incoming of the tide.

Alcohol as food and in disease. This perennial subject is again taken up by two men of much authority, both in the *Medical News* of April 22, '05. R. H. Chittenden finds that while alcohol lowers the rate of proteid katabolism, it increases notably the output of uric acid and purin bases. The increase of uric acid is due to change in the rate of oxidation in the liver of uric acid of exogenous origin, or else there is change in the rate of production of uric acid from the precursors of uric acid contained in the food. There is also the possibility of other oxidative processes in the liver being affected. Alcohol, therefore, presents a dangerous side wholly wanting in carbohydrates and fats. The deleterious influence is evoked only in connection with exogenous uric acid; hence, in many diseases in which a non-purin diet is used the urates would not be increased. G. L. Peabody considers alcohol in disease.

This fluid may penetrate the deepest layers of the skin, thus disinfecting it. By bringing about local changes in the blood supply it affects inflammations not entirely superficial. Compresses soaked in alcohol and covered by gutta percha and cotton wool have given great relief in peritonitis, neuritis, phlebitis and herpes zoster. By its persistent use suppuration can often be averted in buboes, mastitis, carbuncles, etc. When the epidermis is thin, as in children, or over the scrotum, etc., one must be careful of sloughing. It is valuable in carbolic acid poisoning and in external burns by this agent. In acute fevers it is sometimes worth more than all the

cardiac stimulants, since fever does not interfere with its usefulness. There is little danger of engendering the alcohol habit during fever; but this danger increases progressively during convalescence.

The title "doctor" moves the *Pharmaceutical Era* to observe that "no title is better than that which it represents. 'Doctor' as applied to medical men does not convey the sense of dignity or learning to any remarkable degree, because the title is exploited by a dozen or more classes of men who possess neither the one nor the other." The excellent journal to which we refer is moved to this opinion by a proposition to make all pharmacists doctors. "Honor must come spontaneously if it is to be worth having, and recognition of merit by the public in this way is equal to that conferred by any institution of learning or introduced by any set of resolutions." In some countries, especially in South America, the situation is certainly misleading. There even lawyers are called doctors.

Saddle noses restored. Dr. Sommers of Washington, D. C., reports some excellent cosmetic results in the treatment of these cases by the injection of modified animal fats. The method used is similar to that of the paraffine injection, that is, into the subcutaneous tissue and used quite hot. The operation can be made almost painless by means of cocaine spray. Should any swelling result, cold compresses, or some simple lotions will soon relieve. This operation should not be relegated to the charlatan!

Diphtheria antitoxin in Goitre has been used successfully by R. T. Legge (*Jour. A. M. A.*, April 22), in at least three cases. In the first, a typical exophthalmic goiter, the patient, while suffering from a diphtheritic attack, was treated with antitoxin with the usual good results. Besides these, however, there was a gradual disappearance of the goiter and of Graves' disease of eight years' duration. A year has elapsed with no return of the symptoms. Since then Legge has experimented with antitoxin in two cases, one of simple goiter, the other of typical Graves' disease, with like good results. The matter is certainly one for further investigation.

Portland next. The meetings of the *American Medical Association*, like Christmas, come with annual regularity; and many physicians anxious to get out of the rut for a brief season may now look Northwestward in the confident expectation of enjoying a profitable and agreeable jaunt. The round trip rate that will be made from Chicago is \$56.50, which is five dollars less than the regular one-fare rate. It is expected that the passenger associations will make corresponding one-fare rates for points east to the Atlantic. An option will be given of returning by a different road. One may go by the Northern Pacific and return by the Canadian or any of the southern or central routes. Stop-over privileges of ninety days will be accorded at important points. One's route should be very carefully planned out in advance. The rates are open also to friends and families of physicians. Trains are being made up to reach Portland on July 10th. Mr. H. C. Bowers has charge of the local bureau for hotel accommodations in Portland; to him one should write early. Every American physician, if he have not done so, should visit this wonderful part of our country. The Lewis and Clark Exposition will give a fine opportunity to study its industry and products. There could be no better summer vacation.

MISCELLANY

"Subcutaneous diseases" forms a new specialty, of which Prof. Angagneur occupies the chair in the Lyons School of Medicine.

Soft rubber is preserved very well in a solution of aqua ammonia, five per cent., with glycerin, ten per cent., in distilled water.

An International Congress on Tuberculosis will be held in Paris, in October of this year. Our own National Association for the Study and Prevention of Tuberculosis will be represented.

The cultivation of rubber is being taken up seriously in Ceylon. In one month some 60,000 trees of the Para and Castillon varieties were planted in the island, states the *Journal of Tropical Medicine*.

A Section on Medical History has been established in the College of Physicians of Philadelphia. At its initial meeting papers were read entitled "Esculapian and Modern Health Resorts Compared," by Dr. Roland G. Curtin, the chairman of the Section; and "The Most Eminent American Physician of European Birth," by Dr. A. Jacobi.

When everting the upper eyelid the physician should direct the patient to look down. He should get accustomed to using the thumb and forefinger of one hand for eversion, turning the lid upon the tip of the thumb of the other hand, which enters the orbit over the eyeball. This is better than using a pencil or other object for eversion; besides one's thumb is always handy.

E. Abbe, the inventor of the condenser, died recently at Jena in his sixty-fourth year. Besides this invaluable adjunct to the microscope he was the inventor of numerous improvements in instrumental optics; and the now thriving science of bacteriology owes its beneficent prominence largely to his genius and activity. He was some forty years connected with the Zeiss factory, and was during much of the same time professor of astronomy and meteorology at Jena.

The protective power of vaccination was strikingly shown in the case of a nursing mother who contracted confluent smallpox; she was taken to the hospital with her seven months' baby. The infant had been successfully vaccinated fourteen days previously; it was not weaned, but was nursed by the mother throughout her illness, and was handled daily by about fifty other patients in various stages of smallpox; it left the hospital in perfect health (H. J. Neilson, *Brit. Med. Jour.*, April 8, '05).

Baden-Baden's Radium Find is reported by the United States Consul at Kiel. The slime or residuum from the thermal springs is declared to contain very powerful radium, "forty times more powerful" than that found in the residuum of cold water springs or in mud baths. Previously this Baden-Baden residuum was discarded as worthless, but it is now carefully collected and examined in laboratories. Perhaps here is to be found the healing properties ascribed to these springs. This slime may moreover be found more precious than gold ore.

Medicated ointments for the nose have been studied by A. W. MacCoy (*The Laryngoscope*) who has found that surgical procedures will not entirely supersede the employment of drugs; that washes tend to be harmful especially in the winter months; that the employment of soft ointments obviate such risks as follow the use of washes and at the same time hasten a cure; that the

availability, convenience and adaptability of medicated ointments furnish a rational procedure, and that ointments should be prescribed in collapsible tin tubes as a protection against contamination.

A physician was sued in Millstadt, Ill., for \$2,500 damages for the reason that he did not change his clothing when he visited a patient. The plaintiff claimed that while treating his wife for pneumonia the doctor was also treating several smallpox patients, and that he went directly to the bedside of the pneumonia patient after attending the infectious cases, without changing his clothing or taking other precautions to prevent infection. As a result of this carelessness it was claimed, the plaintiff's wife and his five children contracted the smallpox and were ill for several weeks.

The Insane of New York State are being well cared for, states Peterson (*N. Y. Med. News*, April 22, '05), who describes the now excellent facilities for scientific research, the segregation of the tuberculous insane, the establishment of training schools for nurses for this special work, and the almost entire abandonment of restraint and solitary confinement in the State's asylums. Peterson emphasizes that the superintendent of an insane asylum should be an alienist who would be a masterful clinician and who would have sufficient power to engage excellent administrative officials, distinctly as subordinates.

Adenoids in the adult are considered by D. M. Barstow (*N. Y. Med. Jour.*, May 6, '05) to be much more common than is generally supposed. The condition is a frequent cause of nasopharyngeal catarrh, with dropping back of mucous and frequent clearing of the throat. It is also a frequent cause of nasal obstruction, and is the causative lesion in some cases of apparent hypertrophic rhinitis. A thorough examination of the nasopharynx should be made in all cases of ear disease and of pulmonary tuberculosis. The treatment is not difficult and the results are often brilliant and rarely unsatisfactory.

Peruvian Balsam in the treatment of wounds is extolled by Burger (*Munch. Med. Wochenschrift*, No. 48); and our experience decidedly corroborates his statement. He has had particularly good results with cases of crushed fingers contaminated with oil and dirt. Cleansing as thoroughly as possible with bichloride solution is followed by applications of the balsam, the dressings being changed every second or third day. These good results are perhaps due to the cinnamic acid in the balsam. The dressings do not stick. Ulcers of the leg do well under this treatment. And abscesses heal up rapidly after incision and evacuation by means of injections of Balsam of Peru in Castor Oil (1 in 8).

Nasal Disease as a Cause of Headache is very ably discussed by A. L. Whitehead (*Brit. Med. Jour.*, January 28, '05). In all cases of persistent headaches careful rhinological examination should be a routine practice, particularly as the patient may give no subjective symptoms referred to the nose. Suppuration in the accessory sinuses; marked nasal obstruction, constant or intermittent; spurs; deviations; and hypertrophies; pressure of enlarged middle turbinates upon the septum, especially upon its tubercle—all such conditions may cause headache. The author doubts if headache can be produced by a nasal condition which does not give rise to discharge or to obstruction to normal nasal respiration.

SOME PHASES OF CONTRACT WORK BY THE PHYSICIAN.

BY C. S. MILLER, M.D.,

PRESIDENT OF THE TOLEDO, OHIO, MICROSCOPICAL SOCIETY.

IF I were to take the title as a text, and treat it etymologically, I would elaborate first on the principal word—"Work." I would show that perhaps no word in the language has a greater variety of forms and applications. It is used as a verb, transitive and intransitive in a multitude of senses; as a noun in as many more, while its combinations as an adjective and in the form of compound words are still greater. Derived from the Anglo-Saxon W-y-r-c-a-n or w-o-o-r-c, it is the one word which comprises all the activities of the world, and even of the universe, for we are told that in the creation God ended his *work* and rested the seventh day, and Jesus Christ says, "My Father worketh hitherto, and I work."

Work is superficially supposed to be a penalty imposed upon the human race for disobedience and transgression of the laws of Eden, but the foregoing shows that this is not true, as work was necessary to form the garden in which the transgression occurred.

In the sense in which we now use it, work is a service rendered by one individual to another, and if it were a necessity in the beginning of all things, much more has it become necessary by the progress of civilization, and the multiplicity of employments resulting. Just as the differentiation of embryonic cells multiply the varieties of tissues and the functions resulting from them and their combinations.

There is no question, then, as to the necessity of work, but there may be as to the necessity of work as limited or qualified by the adjective, "contract," as performed by the physician. Our profession excludes the practice of mere mechanical or routine labor, as do also the professions of law and theology, and these three are generally spoken of as the "learned professions." This last distinction alludes to the time of study necessary for their successful practice, and does not refer to the first distinction, viz., the exclusion of mechanical or routine elements in the performance of their various duties. That contract work is partially at variance with this element of our profession, must be admitted, as it is in the practice of law, and as it is even more incongruous in ministerial life or the practice of theology. The very word, contract, a union of the Latin "*con*," meaning *with* or *together*, and "*traho*," *to draw*, means a narrowing or bringing together, a limitation of the conditions and principles to which it is applied. The accent placed upon the last, instead of the first syllable, and pronounced *con-tract'*, changes it from an adjective to a transitive verb, with exactly this meaning.

The practice of these three professions is supposed to be free and untrammelled from any such limitation or narrowing. The foundation stone in each is *truth*, and liberty of thought and action follows (as natural and inevitable results), the promulgation of truth, and there is a limitation of thought and action in the performance of contract work or the forming of medical contracts. We do not hold that a physician is limited in his powers of diagnosis, judgment or treatment, by performing a service under contract. Such a position would be unreasonable and untenable, but we do believe that there is a limitation of his personal and professional liberty, and in some cases a strong influence is exerted on his conclusions and their results by the

condition of the contract. This can best be shown by taking examples under different forms of medical contracts.

A physician is employed by a beneficiary order, or fraternity, so called. He may be perfectly truthful and conscientious in his reports of examinations for membership, but if he tells "the truth, the whole truth, and nothing but the truth," he will soon find that so many rejections occur, that the order, or rather the branch of it which he is serving, will soon have no use for him as an examiner, because of the limitations of its membership and its apparent prosperity. Disappointment and bad feeling is also engendered, and not only does he lose his position as examiner, but the hatred and malice incurred, though it may be thinly veiled by the cloak of fraternalism, is ever ready to stab him in the back, or set a pitfall for him in the dark, in his regular professional life. What is the natural result? He remains perfectly truthful and conscientious only long enough to make this discovery, or he makes his own judgment the sole criterion on which the merits of the case rests, and thus reports it. Of the two horns of the dilemma, the latter is by far preferable, and I have gone so far in choosing it, that I have questioned whether a supreme medical examiner is not a superfluity to any order or society, and in passing, it is well to note that this is one of the greatest weaknesses of fraternal life insurance. The rush for membership by the branches of the order brings "new blood" of such an unhealthy character into the parent stem, that before the tree is itself aware of it, and while it still presents a flourishing appearance to the outside world, it is becoming shaky and rotten in every part, and soon topples and falls, at least partly as a result of contract work by its examiner, who is hampered, not so much by the contract itself, as by its environments. Suppose the same contract is carried still further, and the examiner is made physician of the order, with his compensation fixed at so much per capita of the membership. At best it is a lottery in which he takes his chances on getting even a meagre compensation for the service rendered. A few cases of continued fevers or any prolonged sickness, or one or two cases in major surgery, if that is included in the contract, will afford opportunity for service sufficient to balance the compensation for a year, the time usually specified. He may also be called to treat a member through a long sickness, whose case he would have received through some of the regular channels, and at regular rates. He may even be the family physician of such a case, and then be obliged to treat him through, not only one case of sickness, but during the whole year for the magnificent sum of one dollar, more or less.

One of the prominent physicians of the city who accepted such a position on the representation of a brother physician that a similar contract had netted him an average of \$2.00 a visit, soon found himself at the bedside of many of his regular patrons, and it is no wonder that he remarked that "it sawed off at both ends," and sent in his resignation before the end of three months. Other physicians have given me the testimony that it does not pay to do contract work of this kind, but such is the spirit of competition and commercialism in these latter days, that there is always a great scramble for these positions, when the appointments are made, and all the questionable and shady methods known to politics are marshaled to the help of the deluded aspirant.

There are, of course, some advantages to be gained from these positions in legitimate and regular channels, such as the extended acquaintance afforded, the occasional family practice which it leads to, etc., but we firmly believe that these are more than overbalanced by the disadvantages mentioned.

Next akin to fraternalism contracts, are those made with old line insurance companies for examinations, yet there is a great difference. The report in this case is usually based entirely upon facts as discovered, but not always, of necessity. For example, the examiner may "stand in" with the agent, i.e., he may receive a percentage of the first premium or even of the renewals for "working up" a case, or finding individuals, who through the combined efforts of physician and agent, will be induced to take insurance. Of course, if the subject does not pass, the doctor-agent gets nothing but his examination fee, and it is more or less of a temptation to keep unfavorable points in the background, or unduly recommend the favorable aspects of the risk.

It would be folly to assert that this always occurs, or even that it does in a majority of cases, and it is a credit to the integrity of the profession that I have never known of the report of a case being "colored" in that direction, but the temptation for weak hearts is there just the same. Manliness and honesty *resist* temptation rather than avoid it, and this must be done in the regular channels of professional life, else there would be no need for certain clauses of the Hippocratic Oath.

These matters may be termed perquisites or emoluments of the position and these are carried to such an extent by some agents and companies that favored physicians are able to carry large policies of several thousand dollars, the only premiums ever paid being their professional services as examiner:—certainly a fine thing for the individual, but an evident injustice to his fellows. Many other irregularities might be mentioned, but these will suffice.

Another direction in which medical contracts are formed, is in the medical and surgical care of the poor of our cities. Here again we find political principles (or unprinciples) dominating. The announcement by an infirmity board that the lowest *responsible* bid will be accepted with a tacit understanding that no bid under a certain amount will be considered "responsible" is a pointer. This excludes all the lower bids, no matter how reliable or skillful a physician they come. Again an aspirant may say—Gentlemen of the Board, I control my precinct, or my ward, or my *race* vote and there will be a boomerang in the air for some or all of you if I am not appointed,—and he invariably "gets there."

These abuses of the principles of right and manliness are plainly due to the contract system. It would be unfair to give but one side of the subject, and as I am endeavoring to be impartial in the matter, it must be stated that there are advantages also in medical contracts, especially of the latter class, which cannot be overlooked. Charity work which is paid for from the tender pockets of taxpayers should be procured at the lowest possible price for its "responsible" and satisfactory performance. Contracts with individual physicians systemizes the work and takes a great care off the shoulders of the infirmity board; but with the growth and multiplicity of the medical colleges in our cities, would it not be practical to have this work done through them, thereby giving the students in medicine

the clinical advantage of such work. There are some cities in which this arrangement might be burdensome to the colleges from the disproportion between their number and the size of the city, as in Toledo, for example. But there are others in which the work would hardly go around, notably St. Louis.

Perhaps one of the most satisfactory forms of medical contracts is that made by Railroad Surgeons. This is also the form in which I have no experience, and so must be chary in my criticisms. It would seem that the surgical part of the work could be done with greater satisfaction than the medical, which is sometimes included, and in these the patients have been very free to express their inappreciation, to say the least, of the service rendered. The surgeon has the advantage, for a road will employ only those of unquestioned skill and of ripe experience, as many a damage case is doubtless averted or defeated by the standing authority of the surgeon.

There are other forms and varieties of medical contracts which are well worth discussion, but these will suffice for the present. Let us advocate the expulsion of the commercial spirit from our profession which leads to their formation, and hope for the day to speedily come when these trammels will be a thing of the past, and each man be on an equal footing with his neighbor, and all enjoy the perfect liberty of thought and action, which is the natural prerogative of the profession.

THE PRESENT STATUS OF YELLOW FEVER.

BY GEO. R. REYNOLDS, M.D.

PART II.

BURNELL, of Vicksburg, has attacked the mosquito theory; as it is the best presentation of that side of the question, I quote from it as follows:

"The Army Commission says that the insect is infected solely by stinging an individual suffering with yellow fever, and since yellow fever infection does not belong physiologically to the human economy, then the human supply must have been obtained from some extraneous source, and independent of the mosquito. In the consideration of the instances of recrudescence the most typical illustration is not alluded to—that of the recurrence of yellow fever on board of the U. S. S. 'Plymouth,' in 1879. This is one of the greatest moment since absolute data concerning it are obtainable. To those not familiar with it, a brief recital will be of interest. The Surgeon General of the Navy furnished the following account of the case of J. M. Keating, in 1879: 'On November 7, 1878, four cases of yellow fever occurred on board the vessel "White," lying in the harbor of Santa Cruz. These were removed to the hospital on shore, and the ship sailed to Norfolk. Three mild cases occurred during the voyage, and the "Plymouth" was ordered to Portsmouth, N. H., thence to Boston. At the latter port everything was removed from the ship, and all parts of the interior freely exposed to a temperature which frequently fell below zero, exposure continuing for more than a month. During this time the water in the tanks, bilges, and in vessels placed in the store room, was frozen. One hundred pounds of sulphur were burned below decks, this fumigation continued for two days, and the berths, decks, holds and store rooms were thoroughly whitewashed. On March

15, 1879, the ship sailed from Boston southward; on the 19th during a severe gale, the hatches had to be battened down, and the berth deck became very close and damp. On the 23d two men showed decided symptoms of yellow fever, and on the recommendation of the Surgeon the vessel was headed northward. The sick men were isolated, and measures adopted for improving the hygienic conditions of the vessel and crew. The Surgeon reported that he believed the infection to be confined to the hull of the ship, especially to the unsound wood about the berth deck, all the cases but one having occurred within a limited area; and that, while the "Plymouth" is in good sanitary condition for service in temperate climates, should she be sent to a tropical station, probably no precautionary measures whatever would avail to prevent an outbreak of yellow fever.

"During the prevalence of an epidemic, especially after it had been well established, physicians devoted their energies to the relief of the conditions rather than to the discovery of the cause. Occasionally an outbreak of yellow fever followed the introduction of material from an infected centre, and the incident was reported as an item of interest and curiosity, rather than as evidence to support a theory which was already accepted, hence explicit data were not chronicled at the time, and therefore are not obtainable. In using such material, I stated that it emanated from medical men who recited the cases as occurring under their observation, and as such should receive consideration."

"In criticising the illustrative cases of long retained infection occurring on vessels, Bispham suggestively attributes the development of cases to the sting of mosquitoes, and supports his position by citing several instances of long-lived insects, notably one of Dr. Reed's mosquitoes which lived for seventy-one days, and several reported by Mr. Le Prince, which lived up to seventy days. Concluding, he says: 'On this reservation I have also observed some mosquitoes living sixty days after all breeding places have been destroyed. This last was particularly suggestive, as the insects were living in the open where they could be preyed upon by their numerous enemies. This statement concerning the longevity of the insect in the open is interesting and instructive, not only in that knowledge is acquired concerning the mosquito's life cycle, but in illustrating how delicately discriminating an investigator's acumen may be perfected. The recognition of individual "stegomyia" as they fly about the reservation, unmolested, save by their natural enemies, for a period of two months, is indicative of the powers of discernment most wonderfully developed. Dr. Reed's seventy-one-day mosquito had not gained publicity when my paper was completed. Since the fact is known I will modify my statement by saying 'the life of the mosquito, under ordinary conditions, has not been determined.' Prof. Geo. E. Beyer, of New Orleans, in a paper read before the Louisiana State Medical Society, on April 19th says: 'In no instances, however, was I able to lengthen the life of a female beyond a period of twenty-two days. In all experiments I resorted to all kinds of methods to test the longevity of the insects.' And again he says: 'How other investigators should have succeeded to keep mosquitoes on various substances for a month, and longer, is inexplicable to me.'"

"In considering the case of long retained infection on vessels, occurring thirty-nine, fifty-six, sixty-four and sixty-eight days after departure from an infected

port, it is unreasonable to attribute the development of yellow fever cases to an insect's sting. Entomologists claim that in order to exist, mosquitoes must have water—being deprived of it they cannot live more than five or six days. Where water is accessible on ship-board, an opportunity for satiating her sanguinary desire is afforded the female 'stegomyia,' and since it is presumed the power to infect or not infect at pleasure is not possessed by mosquitoes, it is a most reasonable presumption that cases of fever would occur days before the destination is reached.

"Concerning my reference to the great number of cases of fever occurring in 1878, and at Edwards in 1897, Dr. Bispham says: 'He ends the paragraph by this sentence: "Is it reasonable to suppose it was accomplished by the mosquito?"'

"That paragraph should have been taken in connection with the one just preceding it, concerning the cases occurring in Edwards which reads: 'Is it reasonable to suppose that each case was the result of a sting delivered by a mosquito who had stung a case of yellow fever twelve days previously?'

"That is not particularly absurd. Consider the cases of malarial fever, the propagation of which, it is claimed, is dependent upon the sting of the 'anopheles' that develops its power to infect seven or eight days after its bite.

"Compare the number of cases developing during the same season that yellow fever prevails, with the number occurring of the latter disease, and see if some other agent than the mosquito is not responsible. In a report made to the British Medical Association, at its last session, it was claimed that 'about seventy per cent of mosquitoes fed on malarial persons became infected, and seven out of the eight persons bitten by these mosquitoes had the fever.'

"Not much greater percentages of infected 'stegomyia' have been reported, nor has its power of imparting infection greatly exceeded the 'anopheles,' while the period of developing the poison is four or five days shorter in the latter than in the former. Why then should the former be charged with cases of infection so very largely in excess to those attributed to the latter?

"In order to show that mosquitoes existed in sufficient numbers to cause the epidemics, Dr. Bispham says: 'Howard observed that 19,110 mosquitos were counted in one barrel.' This is an error. Dr. Howard observed that '19,110 eggs—larvae, and pupae—no mosquitoes—were counted.' How many different kinds or how many would have merged into images was not stated. It is agreed, however, that mosquitoes are sufficiently plentiful for all purposes, but they are not infected, and it is necessary for them to wait twelve days after biting a yellow fever case before they become dangerous. Many perils beset the life of a mosquito—besides, inhabitants of mosquito districts devise all kinds of ways and means for protection against the insect; it is therefore safe to assume that only a limited few of the female 'stegomyia' succeed, at the termination of their twelve days' probation, in impairing their poison."

"In the characterization of my statement: 'It can scarcely be conceived that the mosquito could harbor the germ for such a time,' (from one season to another) 'as a lack of information on the subject,' Dr. Bispham displays his inability to grasp the full meaning of the statement. Every one knows, who has lived in a mosquito infected country, and who has given the matter

any thought, that insects must necessarily hibernate if they are to be perpetuated; and while mosquitoes disappear with the approach of cold weather, they re-appear with the advent of the balmy spring days. The two occurrences of a recrudescence of yellow fever related in my paper took place in the summer and fall, in Memphis, July 9, 1879, and in Edward, September, 1, 1897. Consider, if you can, a hungry 'stegomyia' curbing her appetite from three to five months while ample opportunity for indulging it is constantly afforded. If cases of yellow fever are dependent upon the mosquitoes' bite, where a recrudescence is noted (and we would have recrudescences very much oftener than they have been, if they are so dependent) the first cases would develop two weeks after the advent of the mosquito, for the hungry 'stegomyia' searches for blood, and will overcome many obstacles to get it, infection is derived from fomites, cases would not occur until warm weather is thoroughly established, and not then unless accidentally disturbed. Note the two sources of infection again: the one, very active, searches for the victim—the other remains perfectly quiescent until accidentally disturbed. Which is the most reasonable source? In accounting for the absence of yellow fever in Camp 'Joe Williams,' in 1878, he says: 'The reason of all this is that what few mosquitoes might be taken to the camp in the first place can find no suitable place to breed, as very little water is allowed to stand in cans about the ground, on account of the usual trouble in obtaining it, and therefore they are soon killed.' In the selections of sites for camps, the water supply is the main object and no place without a good supply would have been selected, and with more than a thousand people congregated together, a few cans would have been discovered by the little insects and since one little 'can' can 'raise enough to make it extremely unpleasant for one to approach within a hundred yards of it,' two or three little cans would raise enough to spread yellow fever. Breeding places, however, are unnecessary, for a recent observer states: 'On this reservation I have also observed some mosquitoes living nearly sixty days after all breeding places have been destroyed.'

"In conclusion No. 3, the Commission did not dogmatically state that twelve days must elapse, but it is inferentially so stated. They say: 'An interval of about twelve days—or more—after contamination, appears to be necessary before the mosquito is capable of conveying the infection.'

"Conclusion No. 4 says: 'The bite of the mosquito at an earlier period after a contamination does not appear to confer any immunity against a subsequent attack.' Dr. L. O. Howard, in his valuable book on the mosquito, seems to have construed these conclusions as I did, for he says—and Doctors Reed, Carroll and Agramante have demonstrated that the yellow fever mosquito will not convey the disease until at least twelve days have elapsed since the time when it bit a yellow fever patient.

"In commenting on the recurrence of cases of fever which were suggested as originating from fomites, the Doctor asks: 'Why could not infected mosquitoes remain in the house for that length of time, when they have been observed to live for seventy days? Other cases brought up in the same way can be dismissed with the same query.' They can be dismissed if one is not looking for facts concerning the subject, but while there

remains any doubt as to the mosquito's sole responsibility in the premises, the true scientist and sanitarian will weigh each phase of the question well before reaching his conclusions. Continuing the Doctor says: 'Finally he makes the statement: "Among the many sanitary measures adopted looking to the control of yellow fever epidemics and to the complete eradication of the disease, no exertions were ever directed towards the mosquito extermination." That is a great mistake, for from time immemorial, sulphur has been used as a disinfectant. On investigation it has been found that sulphur destroys mosquitoes, etc.' The quotation from my paper is correct, no measures directed to the mosquito extermination were ever adopted before. The comment, however, is quite ludicrous. If a few birds were killed during the Santiago engagement, would the report have gone into Washington that 'The boys went bird hunting this morning?' If a few mosquitoes were killed during sulphur fumigation, it was only an incident in the disinfection. The halls, kitchen and unoccupied rooms as a general thing were not disinfected, and no oil was poured on the breeding places. Bispham 'takes the liberty to call my attention to the fact that very many epidemics are spread by mild cases which are unsuspected and therefore unprotected.' With as much propriety, as far as conveying information is concerned, the Doctor might have said 'the sun shines.' If he had been actively engaged in the yellow fever field during the past five years, he would have known that it was the mildness of the disease which has been the cause of the greatest confusion. In some localities it was so mild that the name 'yellowoid' was suggested, that it might be distinguished from the type of fever of Seventy-eight. Look over the epidemics of the past and note the mortality attending the disease. It will be seen that the percentage of deaths ranges from four per cent. in the Brownville, Texas, epidemic (Murray) to thirty-three and one-third per cent. in 1878."

Horlbeck, health officer, of Charleston, in a study of quarantine has said that from the quarantine detention of 40 days, which was the recognized period of detention in the past, to the quarantine restraint of five days now prescribed is a great leap and a vast progress. From the sulphur pots of only fifteen or twenty years ago to the perfected jacketed steam cylinder is a far greater bound and shows a much greater growth. These are not simply advances loosening the checkrein that has hampered commercial prosperity and progress, but they are methods that have greatly minimized and lessened the chances and dangers of the introduction of disease which scourge mankind and desolate the households and habitations of human victims; these steps of human progress have been accomplished in so short a period of time that would almost seem incredible, occurring in less than a generation of man, and during the official life terms of some engaged in the daily mission of protecting our shores from the introduction of dangerous and deadly diseases. With a better knowledge of the diseases our restraints will be still further lessened, and our ability to protect our shores increased.

As pointed out by Horlbeck the head official of our own latitude on the south Atlantic coast of the United States, and to the south of us is never insensible to the notice and warning of the presence of yellow fever, and so around our little world there will be found on the borders of every ocean or sea some plague or pestilence or disease that prevails in that locality with a tenacity and

a deadly force that must be accounted with. These diseases demand every requirement that this age of vitality and accountability has furnished and provided for the protection of the people interested. A temperature of 230° F. will kill pathogenic bacteria; we can surely and safely use this temperature with confidence, and we have the jacketed steam cylinder to effect the desired result; with more or less confidence and belief in their germicidal value there are solutions of certain chemical salts and certain vaporizations, but the dominant, all-important, all-pervading necessity in the work of maritime hygiene and maritime quarantine is a better and fuller and more thorough knowledge of the pathology and of the etiology of the diseases against which quarantine officials must contend and make warfare. The all-absorbing necessity is a better and a fuller knowledge of the causes, and we can in no way better further the great and important subject of maritime hygiene and quarantine than by urging upon these earnest gentlemen of the various Pan-American Congresses the necessity of awakening the public thought and interest among the people they represent towards the more definite and closer study of the diseases which hamper commerce.

The exact knowledge of the *raison d'être* of these diseases due to specific origin is imperative, and meantime maritime hygiene and maritime quarantine will never be scientifically fulfilled in any other way. To acquire such sure and certain information there must be established Government commissions, arranged for bacteriological research. In every State and in every community where there are diseases that exact constant thralldom to commerce and that are of ever dangerous importance, there should be established bacteriological stations for constant, unremitting, and continuous work; not that this commission should work for a limited period, and then other commissions organized, whose first duty may be to hunt for a lost thread of a predecessor's labors, but an organization of trained bacteriological experts, who shall be so equipped as to ensure a successful investigation, and to continue such labors until the work that has been assigned to them has been brought to a successful termination—*mulla dies sine sine linea*—following the heritage of Lord Bacon: "Its law is progress; a point which yesterday was invisible is its goal to-day, and will be its starting point to-morrow." For two and a half years Ross, with unflagging interest, though baffled again and again, sought the malarial organization in the mosquito, and found it. The solution of the cause of the transmission of malaria among the nations of the earth—the certain knowledge—dissipating the superstitions of malaria and malaqua, is of such incalculable importance and benefit that it should be a beacon-light in all lands and in all countries. The discovery is the result of well-appointed, well-organized, and long-sustained bacteriological investigation. Laveran commenced this work in 1889, by the discovery and description of the plasmodium malarie, but it took twenty years of constant work to fulfil all the requirements, so that full fruition should come to mankind; the culmination of the work has been the success of the procedures undertaken and carried out during the summer of the year 1900, at Ostia. To-day it is simply the problem of the destruction of the anopheles mosquito, for no anopheles, no malaria. It has taken a quarter of a century of continuous scientific work to accomplish this brilliant result.

RECENT ADVANCES IN THE STUDY OF RHEUMATISM.

BY J. LEE FOWLER, M.D.

PART II.

IT is a well-known fact that joint symptoms in a child are so slight at times that parents are apt to dismiss the complaints with the comforting assurance that they are "only growing pains." It would be fallacious to attempt to determine the number of cases of rheumatism in childhood were these estimated by the joint affections alone; again heart affections may apparently occur alone as the earliest symptom. Do not neglect the undoubted relation between chorea and rheumatism, and our statistics err in frequently classing as chorea only those cases in which there is an association with rheumatism. Probably 55 per cent. of cases which come under treatment for chorea show positive evidence of rheumatism; these cases, commonly regarded as chorea only, have probably accounted in part for the statement that rheumatism is a disease of adolescents and adults rather than of children. The slight articular pain frequently complained of by children often will reveal a real affection of the joint, and it is important to remember that the hip-joint is frequently affected, and in such a monarticular case the mistaken diagnosis of beginning tuberculous disease might well be made. Pain from the hip, as is often emphasized, may be referred to the knee. In childhood, dilation as well as irregularity of the heart may occur without endocardial symptoms. Wasting is also common in this affection in childhood; nodules are much more common in rheumatism in childhood than in adults. There is a close association between these nodules and endocarditis. There is one result of rheumatism in adults which is almost unknown in childhood, and that is the cerebral rheumatism or rheumatic hyperpyrexia. Pain in the stomach, pain in the side, usually the lower portion of the axilla, and headache are common symptoms. The nervous child is par excellence the rheumatic child. Such children are apt to be excessively or, on the other hand, very timid and shy, even to the point of appearing morbid. The writer suggests that red hair is often associated, both in children and adults, with the rheumatic tendency. Somnambulism and talking in the sleep, and habit spasms are also evident in rheumatic children. The author points out lastly the importance of paying heed to the trivial symptoms, recognizing, for instance, the serious nature of "growing pains."

Maclagen introduced the salicyl compounds in the treatment of rheumatism in 1874, and this was followed later by the employment in Germany of salicylic acid. These drugs rapidly relieve the pain and reduce the temperature if administered in sufficient quantity; with regard to their action, it has been urged that: (1) they act as antiseptics, and destroy the specific organism, (2) that they exert an antitoxic action, and (3) that they act as nerve sedatives. It appears probable that they must exert a depressant action upon the heart before they can be introduced in sufficient quantities to saturate the blood up to the necessary point. With regard to the second view they may destroy or neutralize the offending toxin; they are powerful hepatic stimulants, and they also possess the power of combining with fatty acids, the seat of whose manufacture is to a great extent in the liver; one of the toxins of rheumatic fever may be a fatty acid which is seized upon and removed by the salicylate. A decided advantage possessed by the salicylates is that they produce sweat-

ing. In treating a case of rheumatic fever, the patient should wear a woollen night-gown and sleep between blankets, and the room should be well ventilated. Absolute and prolonged rest is essential, especially with the view of preventing cardiac complications. The diet should be fluid, largely milk, and plenty of water should be taken. As to drugs, 20 grains of soda salicylate and 30 grains of an alkaline carbonate should be given every three hours until the pain is relieved and the patient is fully under the influence of the drug, when it should be given every 4 hours until the temperature has fallen to normal. Afterwards, 15 grains of the salicylate and 20 grains of the alkaline carbonate are given every 4 hours until all the joint symptoms have disappeared; then 3 times a day until a fortnight has elapsed from the complete disappearance of the joint symptoms. The natural salt rather than the artificially prepared soda salicylate is recommended. By a free movement of the bowels at the outset by a saline or mercurial, the effects of salicism can be largely prevented. Salicin, recommended as being less of a cardiac depressant, is sometimes useful instead of the salicylate. The painful joints may be blistered, or be wrapped in a salicylate of methyl preparation, and the air excluded. It is important to keep up the treatment long enough, for many so-called relapses are really recrudescences of a disease not yet terminated. For endo- and pericardial affections local blisters are recommended, and stimulants when indicated. Hyperpyrexia is best treated by cold baths, the water should be at 65° F., and ice added as the temperature of the water rises, when the patient is submerged. Occasional courses of the salicylates are useful in patients having light recurrences. A largely vegetarian diet is recommended, and careful personal and general hygiene.

Predtsetshenski, in bacteriological study of 5 cases of acute articular rheumatism, employed special media and methods for the cultivation of Achalmé's bacillus and Wassermann's streptococcus, but in neither of the cases was Achalmé's bacillus found. In 3 the cultures remained sterile, while in 2, anaerobic cultures of the blood on the medium devised by Achalmé resulted in a growth. In one a micrococcus was found possessing the following characteristics; the organism occurs in chains of 2, 3, or 4, forming much longer chains in fluid media; it stains well by Gram's method; and is a facultative anaerobe, growing well on ordinary culture media. Bouillon is rendered uniformly turbid; on agar the colonies are delicate and transparent; milk is coagulated; gelatin not liquified. Morphologically, then, this organism resembles closely Wassermann's streptococcus. Inoculations into animals produced a disease presenting the clinical picture of acute articular rheumatism in man. Ten to fifteen days after the inoculation painful tumefaction appeared in the joints of the legs, principally the large joints, accompanied by fever, loss of weight, and finally terminating in death. Autopsy showed marked inflammatory changes in and about the joints, the latter containing a small amount of a turbid fluid. In one of the guinea pigs, a well-developed endocarditis was found. The organism was recovered from the blood and joints of the dead animals; it proved non-pathogenic to rabbits, the latter showing only a slight reaction. In the other case the organism found was also a micrococcus very similar morphologically to the preceding except that it grew more vigorously and formed shorter chains. Animal inoculations gave the following

results: In one guinea pig, the inoculation was followed by an elevation of temperature and loss of weight. These symptoms soon subsided. In two weeks painful swelling of the knee joints appeared, the animal being unable to use its limbs. Sodium salicylate was administered, but the animal died. The autopsy revealed hemorrhages into the tissues surrounding the large joints, pericarditis and endocarditis of the aortic valves. Intravenous injection of 0.8 c.c. of a bouillon culture in a rabbit was followed on the third day by an affection of the joints, becoming progressively worse and resulting in death on the 11th day. Autopsy showed an effusion of a turbid fluid into the joints. Another rabbit died on the 14th day after the inoculation, showing on autopsy marked vegetative endocarditis, but no affection of the joints. The organism was recovered from the lesions. It is noteworthy that the patient from whom this organism was originally obtained had a relapse and the same organism was found the second time. The author does not undertake to decide whether the two organisms are varieties or one and the same, but grown under somewhat different conditions, nor does he claim that the organisms are identical with Wassermann's.

Occasionally we find cases in which we should be justified in a diagnosis of rheumatism, wherein the painful affections of the joints and the structural changes therein are long continued and intense in a manner quite disproportionate to that we usually find in rheumatism. These cases Sansom called "complicated rheumatism," which is explained by some cases he reports: "A woman, aged twenty-seven, was lately admitted under my care, complaining of pains in the joints, headache, and sweating. Her temperature was 99.8° F. There was a family proclivity to rheumatism. Her father died from meningitis and her mother and sister suffered from heart disease. The patient said she had had a sore throat frequently, but no rheumatic fever. The illness for which she was admitted began a week previously, and she had pains in the right arm, left leg and knee, right knee, and the left hand and fingers. She was pale and anemic; the tongue presented a white, furred appearance; the tonsils and uvula were inflamed, showing recent congestion; the wrists of both hands were swollen and painful; the right knee and ankle were painful, but not swollen; the heart was quite normal; the pulse 90 and regular. A week after admission there was much pain in the left hand and redness over the ulna, but very little swelling. There was also pain in the right foot over the metatarsophalangeal joints. Four days afterwards there was a sudden rise in temperature to nearly 103° F., and then a rapid fall to subnormal, 97.5° F. There was corresponding rise the next day and a similar fall. This was repeated for several days, and a week afterwards there was a rise to 103° F., and then a fall to the normal.

This recurred on the following day, and two days after the temperature became subnormal, falling from 98° F. to 96.5° F. There was no rise above the normal subsequently. During the period of irregular rises of temperature there were headache, stiff neck, much swelling of the left wrist and the elbow, and free sweating. Nine days afterwards there was much pain in the calf of the left leg, with tenderness—due, no doubt, to neuritis. There was also continued pain in the right wrist, with much enlargement, and we kept the limb on a straight splint. In ten days the pain

subsided and there was a general improvement. The treatment in this case was our usual mixture of salicylate of sodium, administered at frequent intervals. Afterwards the treatment was directed to the general nutrition, and cod-liver oil was administered. Locally we applied hot solutions of soda to the wrists and a blister above the right wrist, and, besides keeping the limb at rest upon a splint, we applied a solution of iodine. When this case was first admitted we had the ordinary signs of rheumatic fever—the temperature being only slightly raised—and then there were certain points differentiating it from the ordinary run of rheumatic fever. (a) The small joints of the fingers were attacked early, and soon after the metatarso-phalangeal joint of the foot. (b) The pain did not subside in the way usual in rheumatism, although the ordinary treatment by salicylates was put in force. Usually the pain and swelling subside within a fortnight; here the disease was protracted to thirty-seven days. (c) The symptoms as regards the joints, especially the severity of the suffering and the amount of the swelling, were not correlative with the temperature. At first the temperature was comparatively low, though there was much inflammation of the joint. Then there was sudden rises and falls without associations with the joint symptoms. There was a sudden drop to the subnormal, when there still existed a great swelling and pain in the left wrist and elbow. (d) At a later period there was severe suffering in one joint—the right wrist, which we kept upon a straight splint. (e) There was no heart affection, although such very severe articular inflammation. (f) There was neuritis shown by the pain and tenderness in the muscles of the calf. The next case of complicated rheumatism was in a man, aged thirty-one, complaining of pain in the back and in the joints of the lower extremities. There was a history of a tendency to true rheumatism as regards the father and brothers. The man had no previous illness. He took a great deal of alcohol and worked a crane on a ship's deck, and therefore was much exposed to extremes of temperature. He had swellings of the knees and ankles, and the sour sweat of rheumatism; pulse, 92, temperature 102.5° F., heart quite normal. The symptoms, therefore, were those of acute rheumatism. He was placed under the usual treatment by salicylate of sodium, and in addition a draught containing opium on rare occasions. At first the swellings with the pain became sufficiently reduced; but a fortnight after admission there was great suffering in the joints of the upper extremities as well as in the knees, and the temperature rose to 104° F. There was a remarkable erythema of rheumatic form over the chest and abdomen and over the flexor surfaces of the arms; the tongue was dried and glazed and there was herpes about the mouth. A week afterwards the pain ceased and the temperature became normal. Four days subsequently, however, there was a return of intense pain in both knees, followed three days afterwards by pain in the wrists, and we applied ice-bags to the joints. In the left knee there was much effusion. Later, there was severe pain in the left shoulder. A gradual improvement occurred, and the patient was able to get up, but still had severe pain and enlargement in the left knee. In this case there was arthritis with high temperature at first, but when the more painful symptoms occurred, there was a sudden drop to the normal. Subsequently there were great irregularities of the temperature in no definite relation to the joint signs.

Sansom says that it is obvious, then, that these cases presented great differences from those that we are accustomed to consider as instances of true rheumatism, and we may consider why they deviated from the normal, a question as much important for diagnosis as for treatment; these patients were comparatively young, whereas, it is more common to get deviations from the type of rheumatism after the age of twenty-five. There was no traceable association in these cases with gout, but to my mind, there was a very strongly pronounced association with osteo-arthritis; that a tendency to osteo-arthritis was ingrafted on to the undoubtedly rheumatic disease from which these patients suffered, and we should ascribe the modifying tendency to a disturbance of the spinal cord. We know that acute inflammation of the spinal cord, as in cerebro-spinal meningitis, may be attended with pain, swelling, and redness of the joints, closely resembling the signs in acute rheumatism, and yet there are manifestations of no other rheumatic affection. I have had some interesting experiences lately as to the effect of influenza in producing a like series of events, the inflammation of many joints with severe pain, almost indistinguishable from rheumatism, but suddenly ceasing with a rapid fall in temperature and unattended by any other rheumatic signs. Again, I have observed in very late periods of the disease an intense inflammation of a single joint closely resembling osteo-arthritis, and in these cases I have had abundant evidence that there is an inflammatory or other change in the spinal cord and its membranes. We also well know certain chronic diseases of the spinal cord, as *tuberculosis dorsalis*, are attended (as shown by Charcot) with destructive inflammations of the joints. In some cases the joints are profoundly altered, but the changes are in the nature of an atrophy of the tissues not attended with severe pain.

In these cases of complicated rheumatism, the most important points are rest and careful local treatment of the joints, after it is found that the salicylate treatment has not sufficed to reduce all the pain and discomforts. For local relief of the joint, as well as for the arresting of the morbid processes which are characterized by intense inflammation, I believe the use of the ice-bags to be most valuable. It is true that in some cases they are not well borne, and in those I have adopted the plan of applying locally hot solutions of salicylic acid or an ointment of salicylic acid with turpentine spread on lint over the joint and covered by a flannel bandage, as recommended by Bourget. A local hot-air bath has also proved of service in some cases, but the most important point is rest upon the splint, and other means should be adopted to reduce the pain and swelling; it is of the highest importance to treat the case by tonics and cod-liver oil. Massage may prove valuable if the disease proves intractable.

A case of voluntary iris is described by J. W. Scherer (*Jour. A. M.*, May 6). A child at nine developed the power of voluntarily rotating the eyeballs independently. He could dilate the iris at will, almost to the disappearing point. At puberty the right iris was for awhile twice the size of the other, but later they became equal again. The power to simulate convergent strabismus is possessed in this case (that of a woman) to a remarkable degree. Vigorous exercise of the iris movements seem to cause slight aching of the eyes, but no other inconvenient symptoms are reported.

EXPERIENCES IN GYNECOLOGY.

BY WM. WORMLEY, M.D.

THE stem pessary introduced by Sir James Simpson to treat certain cases of anteversion of the uterus, is intended to straighten the flexed uterus, and maintain it in a normal position. It is unsuitable for cases of displacement of the uterus where the uterine axis is normal. We can divide cases of anteversion into two groups. First, comes the simple uncomplicated cases; second, the cases in which there are other pathological conditions. In the first anteversion is the only pathological condition present, or there may be some associated error of development such as a very small uterus or stenosis of the cervix, but cases in the second group are complicated by inflammatory changes, or by the development of a uterine tumor. Some cases present a distressing train of symptoms, such as dysmenorrhea, often menorrhagia, with pain in the back and abdomen, and sterility. The stem pessary is not indicated in all cases of anteversion with such symptoms, for example, the presence of any progressive inflammatory process, or of a new growth, or of joint adhesions are contraindications. Restrict its use to cases in which the flexion is marked, and is the cause of the symptoms, while the uterus is free from adhesions, and there is no other pelvic trouble. Cervical stenosis is not a contraindication, for the cervix may be divided as previous to the use of the stem. In its simplest form the stem pessary consists of a straight or slightly curved cylindrical rod, provided with a collar to prevent it from slipping into the uterus. This form is difficult to retain in position unless the patient is kept in bed, so modifications have therefore been devised; a "Combination Stem Pessary" consists of an intra-uterine stem fitted to some form of vaginal pessary, such as the Hodge; this serves the double purpose of retaining the stem in utero and supporting the uterus. In using the stem pessary, the uterine cavity must be carefully measured with the sound, and a stem selected a little shorter than the uterus, to obviate injurious pressure of the point of the instrument upon the fundus. In introducing the stem it may be necessary to employ an anesthetic. If the cervical canal be too narrow the cervix may be divided. The stem should be introduced rather by drawing down the cervix with the vulsellum than by pushing the stem into the uterus; should the flexion be so great that the stem cannot be made to pass the angle, it is better to divide the posterior lip of the cervix, as the stem can then be carried back so as to bring it more nearly into the line of the uterine axis; should the cervix be divided a few days should be allowed to elapse before the stem is introduced; and for a week or more after the introduction of the stem the patient is kept upon her back; she is then allowed to get up, and if the stem is retained in position it may be worn for several weeks steadily.

The stem pessary will not cure all cases in which it may be employed, but very marked benefit attends its use in certain instances; its presence is usually well tolerated, speedy relief from pain ensues, and menstruation may become entirely painless. Nevertheless, its use at all is deprecated by many specialists.

Pichevin asserts that the wearing of a pessary succeeded in many cases, especially if the uterus was restored to its normal position soon after delivery; but these deviations were the cause of various disorders being due: (1) To metritis, which is in some cases so

intense, especially at the angle of flexion that there may sometimes be found considerable sclerosis; (2) to the existence of a sclerocystic ovary; (3) to the presence of slight uterine lesions, such as adhesions to the pelvis, to the rectum, and to the small intestine. Dubourg advocates dilating the cervix freely, and drainage, and after a time shortening the round ligaments. Posterior adhesions would require posterior colpotomy. Lesions of the appendages might require different methods of treatment, from dilatation and drainage, which in some cases will permit natural evacuation of large fluid collections in the tubes, whether hematosalpinx, pyosalpinx or hydrosalpinx.

In displacement of uterus Parvin wrote that anterior colpotomy, beloved especially by German operators, has proved successful in cases which have hitherto been treated by abdominal sections, such as pyosalpinx, and some cases of cystic disease of the ovaries, and in this respect must be regarded as of great value, for as shown by the statistics of Winter, about one-third of those who undergo laparotomy suffer from hernia, in some cases not occurring for two or three years. By this operation a retroverted or retroflexed uterus may be restored to its normal position, even in cases of very firm posterior adhesions; after the restoration vaginal fixation may be employed. For the removal of myomata, whether pedunculated or mural, especially if the latter are situated in the anterior colpotomy has been successfully done and also in ectopic gestation. Martin states that he has employed the operation in one hundred and sixty-nine cases of ovarian and in one hundred and thirty-nine of tubal disease, and also in nineteen of retroflexed, and seven of prolapsed uterus; one of the four cases of tubal pregnancy was also his. Martin describes the operation as follows:

"The patient is placed in the dorsal position with the legs raised on either side. A speculum being introduced into the vagina, the uterus is fixed with a pair of forceps, invented by my assistant, Orthmann, a combination of a uterine probe and vulsella, which grasps the anterior lip of the cervix so that one can draw down the cervical portion of the cervix to the vaginal introitus. Another pair of vulsella forceps should be fastened just under the orifice of the urethra, about three inches from the cervical opening. The anterior vaginal wall is pulled upwards, a fold is raised vertically, which is to be incised and peeled off laterally from the surface of the bladder and cervical body. Hard fibres will be seen above the vaginal insertion, which are to be divided. The upper border is to be then pushed upward with the finger, separating the loose tissue between the bladder and the uterus, so carrying the former up out of the way behind the public joint. Occasionally, the bladder is distinctly made out, otherwise never seen." The lower forceps had better seize the vaginal wall at a point corresponding with the internal orifice of the urethra; a good tenaculum forceps answers. Splitting the vesico-vaginal wall is done with the scalpel, and separating the bladder from the uterus will occasionally require scissors to divide firm tissues, and the operator during this process can avoid danger by keeping close to the cervix, the white appearance of which will be his best guide to avoid the bladder.

It is stated that Lohlein cured eighteen per cent. of chronic cases with the pessary, and Klotz had twenty-five per cent. of complete cure, sixty per cent. relative cure, and fifteen per cent. remained without improve-

ment, the same means being employed. Ventrifixation seems generally abandoned, at least in Germany, for vaginal fixation, the first suggestion of which was made by Sanger, in 1887. The first method was Schucking's, which has been abandoned because of the danger of injuring the bladder, and because of the uncertain results; Mackenrodt, after performing anterior colpotomy as previously described, but not opening the peritoneal cavity, then stitched with silkworm gut, the uterus to the borders of the vaginal incision, the threads being carried through the uterus one or two centimetres above the internal os; the ligatures were removed in three to four weeks. The result not being entirely satisfactory, he modified his method by carrying the stitches higher up in the uterine wall, and then through the peritoneum of the vesico-uterine cul-de-sac. Other operators, however, open the peritoneal cavity, and stitch the uterus, three ligatures usually being used, the highest passing through the fundus in the vaginal incision, the stitch beginning on one side of the divided vagina, thence passing through the uterine wall and through the opposite vaginal wall. Uterine hemorrhage may be indicative of a number of conditions and should always lead the physician to examine for its cause with patience, for no patient should be permitted to go without a thorough exploration to ascertain the cause of the condition. Do not make the mistake of attributing it to some slight local condition or to the menopause. Should hemorrhage occur at the menstrual period, even though it may be near the climacteric, careful examination should be made, for not infrequently at this period of life it comes from degenerative processes, in which relief can only be obtained by early resort to operative procedures; if you permit your patient to go for some time without subjecting her to treatment, you are doing yourself and her an injury. Resign the case if the patient is unwilling to submit to examination and let some one else have the responsibility rather than to continue treatment upon symptoms alone, permitting the possibility of development of degenerative processes unoperable. Hemorrhage may be due to disease of the endometrium, in which inflammation of the lining membrane leads to distention of the vessels, the circulation is interfered with, papillary growths arise upon the surface, and increase the tendency to hemorrhage, either in the menstrual intervals or at the time of menstruation; it may be due to the retention within the cavity of the uterus of parts of embryonic life, a portion of the placenta, or membranes after abortion, as do retrodisplacements of the uterus shortly after delivery. When a patient suffers from bleeding two or three weeks after her delivery, examine and keep in mind the possibility of its originating from retroversion and retrodisplacement. Growths within the walls of the uterus, projecting into its cavity, interfering with the circulation, are generally associated with bleeding. These growths may be benign, such as fibroid tumors, or malignant, as epithelioma, sarcoma, and carcinoma. Hemorrhage also may arise from diseased conditions outside the uterus in its immediate vicinity, inflammation or an exudation situated in the broad ligaments, the presence of an ovarian or broad-ligament cyst, or an ectopic gestation; the return circulation through the veins being obstructed. The presence of fecundated ovum in the uterus, the hemorrhage a result of increased congestion and an indication of threatened abortion may cause hemorrhage. Excessive menstrual flow may be an indication that preg-

nancy exists, continuing during the first two, three, or even four periods subsequent to the conception. Malignant disease in a woman thirty years of age is uncommon yet it is important to remember its possibility, as cancer occurs in women at any age, and the younger the woman the more rapid the progress. Again hemorrhage results from constitutional diseases; from depraved nutrition; it may be an indication of zymotic disease; cases of typhoid fever occur in which hemorrhage is so marked as to lead the physician to believe that it is caused by some local trouble. Diseases of the kidneys, of the liver, and of the heart not unfrequently produce uterine hemorrhage. Diseased condition of the ovaries is a cause of hemorrhage; thus, in chronic ovaritis, accompanied with formation of cysts, hemorrhage is common, and in some cases only relieved by the removal of these organs; ovarian hyperemia is one of the most frequent causes of hemorrhage in early menstrual life, and if the condition is neglected, results in chronic inflammation of the ovaries. In a patient under my care we are able to eliminate by examination the probability of this hemorrhage arising from any other cause than a local one; there is a growth within the uterus which is perceptible through the abdominal walls, and this growth is undoubtedly the cause of the hemorrhage. Growths within the uterus are usually of one kind. They develop in the organ itself, due to a localized inflammation and hypertrophy. These growths classified according to the situation, one in its origin of development, situated near to the mucous membrane, as it subsequently increases in size is projected into the cavity and pushes before it the mucous membrane. One situated near the outer wall would be projected beneath the peritoneum, becoming known as a subperitoneal, contradistinguished from one beneath the mucous membrane, or submucous. Those tumors, equally distinct between the two walls, increase in size and project internally and externally, or "interstitial tumors." The submucous growths are most likely to be accompanied by hemorrhage, interfering with the circulation in the mucous membrane. The pressure of a growth upon the mucous membrane paralyzes their muscular coat, and when the vessel ruptures it has no contractile power to stop bleeding. These growths influence the circulation of the organ and distress from pressure the surrounding organs and the pelvic contents; filling up the pelvis it presses upon the rectum and bladder, upon the ureters, and keeps the patient in torment until it attains sufficient size or is pushed out of the pelvis, resting upon the pelvic brim. Congestion about the anus, due to the pressure, to the formation of hemorrhoids, fissures, and from rectal bleeding then appears. Pressure of the tumor upon one or both ureters gives rise to hydronephrosis, to continuous pain in the region of the kidney.

A fibroid tumor causes marked hemorrhage, a condition of profound anemia, a straw-colored appearance of the skin, leading to the belief that the patient is suffering from malignant disease; this is sufficient to indicate the necessity for an operative procedure, and it becomes a question of importance to decide its character. If the tumor is found to be already dilating the cervix, and is partially extruded from the cavity of the uterus, further enlarge the cervical opening, and enucleate and remove the growth, seizing it with a strong pair of vulsellum forceps rotating upon its axis until the pedicle is twisted off and the tumor can then be delivered by traction; it may sometimes be attended with consider-

able difficulty, and may necessitate the incision of the cervix on either side. Pack the cavity of the uterus with gauze, suturing the incised cervix. Use such remedies as will bring about a contraction of the uterus, cutting off the supply of blood to it; of these, the most effective is ergot, increasing the contraction of the muscular coat of the vessels and stimulating the contraction of the uterine walls, having a double effect, given by the mouth, by the rectum, in the form of suppositories, or by hypodermic injections. If hypodermics are used, care should be exercised that the remedy is free from micro-organisms; it should be given with a clean instrument, and the needle should be inserted deeply into the tissues, preferably over the abdomen. Such injections may be given two or three times a week. Ergot by stimulating the contraction of the uterus facilitates the extrusion of the mass into the uterine cavity or vagina and the dilation of the cervix. Extrusion into the vagina may be facilitated by dilating the cervix or by making lateral incision. A very good combination is to give an ounce of fluid extract of ergot in combination with a half ounce each of fluid extract hamamelis and tincture of cinnamon; of a drachm three or four times a day, or every two or three hours, if necessary, to control hemorrhage. Ergot may produce disordered conditions of the stomach, so that it cannot be continued for any time. In such cases where the tumor is situated high up in the uterus, the cervix is undilated, and the walls of the uterus have undergone considerable fibroid change, it becomes a serious question as to what shall be the method of procedure. Where it is evident the uterus is pretty well destroyed, the patient suffering from constant attacks of hemorrhage, the life endangered thereby, the preferable operation in such cases would be the extirpation of the uterus, for although palliative operations may be done, such as ligation of the uterine arteries through the vaginal incisions, as suggested by Martin; ligation of the ovarian and upper part of the utero-ovarian anastomosis, yet it was found that the operation did not always arrest the hemorrhage or decrease the growth. Eastman has devised a ligature for the ovarian artery, and then has subsequently pushed off the uterine artery, tearing the small branches by which the uterus is supplied, and removing the entire organ without second ligature. The complete extirpation of the uterus with the removal of a small portion of the cervix, where readily performed, is preferable; the plan of operation is similar to that already discussed, with the exception that the opening is made into the vagina posteriorly, and the cervix separated from the vagina and removed entire. Both these operations, of course, should be preceded by asepsis. After the organ is removed, the cavity may be packed with iodoform, the end of it projecting into the vagina and the peritoneum stitched over this, shutting the gauze outside the peritoneal cavity. The abdominal wound is then closed entire. The advantage of this over the extra-uterine method of treatment is that the convalescence is much more rapid, the patient is less likely to have a weakened ventrum, and subsequent ventral hernia. There is an absence of the traction upon the vagina and uncomfortable pressure upon the bladder, and the patient is deprived of nothing that is of any special value. For hemorrhage, the intra-uterine use of the positive current has been beneficial, but it is only temporary in its effects. Its discontinuance leads to redevelopment of the diseased condition, and the return of the hemorrhage is as severe as before.

In uterine therapeutics, ichthyol is useful in eczema of the vulva, pruritus, vaginitis, vaginal cicatrices, erosions of the cervix, etropion, hypertrophy of cervix, multiple lacerations of cervix, cervical endometritis, subinvolutions, and indeed all gynecological conditions. Eczema and pruritus are cured at once in many cases. In vaginitis the results are most gratifying, the ichthyol being applied on tampons in antiseptic glycerine solutions. For endometritis ichthyol is used in 10 to 20 per cent. solution, and not only cures for the time but prevents a return of the trouble; is useful in some cases of metritis and parametritis; not more than $11\frac{1}{2}$ grains were rubbed into the skin by means of a 10 per cent. ointment, and it was also applied to the vagina by means of tampons impregnated with the glycerine solution. After three or four days of this treatment, combined with rest in bed and the mild use of saline purgatives, convalescence set in promptly. The drug is absorbed, is comparatively cheap, since it is used in 10 per cent., or at most, 20 per cent. solution, does not permanently stain the clothing, has an odor which is easily disguised by volatile oils, and, unless used in conjunction with lanoline, a non-irritant to the skin. Cotton soaked in 5 to 10 per cent. of the Sulph-ichthyolate of Ammonia in glycerine causes speedy disappearance of acute vulvitis with painful erosions, and in vaginitis, tampons impregnated with this solution are equally efficient. In urethritis a 5 to 10 per cent. solution of ichthyol in water, when injected, caused prompt subsidence of symptoms. Cervical endometritis, with ulcers, was quickly cured in from six to eight treatments with tampons soaked in 10 per cent. ichthyolate in glycerine, while the same solution, carried in by means of gauze, cured endometritis of the uterine cavity.

Hemorrhagic metritis is usually not painful; when so, the pain is only present when clots are being expelled, although as in all other diseases there are exceptions to the rule. The patient more likely complains of a sensation of weight in the pelvis; she "feels her uterus," and this painful symptom is particularly noted in the median line. The pains may be those of painful metritis, and are seated in the pelvis, kidneys, and the inner aspect of the thighs. Between the metrorrhagia, leucorrhoea is frequently present, whitish-yellow in color, rather thick, and comes from the uterus, while the gelatinous leucorrhoea of the cervix is rarely met with in these cases, because the lesions are seated in the corpus and not in the cervix. The cervix will be found enlarged, although not greatly, while the uterus is larger than normal, and movable, usually without tenderness. The adnexa, if not previously diseased, will be found normal.

The cervix is in a state of hypertrophy, participating in the enlargement of the corpus. When you find by digital and bimanual examination, as well as by a careful palpation, that the uterus is slightly hypertrophied, that the cul-de-sacs are normal, and still more, that the patient attributes the trouble to a miscarriage, no doubt should remain as to the nature of the affection. A fibroid polypus could not cause a mistake, for it is usually detected easily through the half-dilated and patulous cervical canal.

Hemorrhagic metritis does not tend towards cure, and neither does it grow worse. The patients become weak after a longer or shorter length of time from the repeated loss of blood; becoming decidedly anemic; their organism is less resistant against other intercurrent maladies. The prognosis is relatively serious, because the metrorrhagia renders the patient weak. The flooding

forces her to remain in bed at least several days monthly, while the rest of the time anemia is so marked that she has not the vitality to attend to her duties. This type of metritis is usually interstitial or mixed, *i.e.*, both glandular and interstitial. Hemorrhagic metritis of old age is the purely interstitial variety, while in young women the stroma presents the most marked lesions, but the glands do not completely disappear. The newly-formed vessels, which are only capillary, are most irregular and of relatively large calibre. They are generally very superficially situated at the free surface of the endometrium, while the greater part of the cul-de-sac of the glands are situated below them; the hemorrhages can be accounted for by the number and situations of these newly-formed vessels.

When the impregnated ovum comes into the uterine cavity, some eight to ten days after leaving the ovary, it reaches the congested endometrium; it is stopped in the neighborhood of the orifice of the tube by one of the many folds which exist in the mucosa, and being pressed between these folds, it finally becomes planted in the mucous membrane. The borders of this depression produced by the implanted ovum soon rise up and surround it; hypertrophy then takes place, and progressively the germ is closed in, imprisoned in a cyst, whose walls are made up of the endometrium; the part covering the ovum being the decidua reflexa, while that which has been pressed in by the ovum, and on which it is implanted, forming later on the placenta, is the decidua serotina; the endometrium, which has no relation to the ovum, is the decidua vera. At the outset of pregnancy the ovum is extremely small, and the decidua covering it is in contact with only a very small portion of the decidua vera, but towards the end of the third month the decidua reflexa is in direct contact with the entire decidua vera. After the commencement of the fourth month the decidua vera and reflexa begin to close together, and from that time on both membranes are so intimate that they form but one. At the same time many very solid adhesions are formed with the chorion, the latter being, as you are aware, the external envelop of the ovum. During the first two months the decidua vera is thick and very vascular, while its internal aspect is riddled with small openings, which are nothing more than the orifices of the uterine glands; it progressively loses its vitality, the folds disappear, it decreases in thickness, while the greater part of the vessels and their elements vanish. This atrophy is most marked at about the fourth month, and at the same time the adhesion between the decidua vera and reflexa is about complete. According to Friedlander, changes take place which end in the detachment of the decidua. These begin at the third month and have the following characters at the end of pregnancy: The decidua vera has no epithelial lining, being reduced to two layers, one glandular, the other composed of special cells. The first named is in direct contact with the muscular tissue of the uterus, and is composed of glands lined with epithelium and united by connective tissue. The second is made up of large round cells in the most superficial part, while that portion which is in the proximity of the glands is composed of spindle-shaped cells. It is in the middle of the spindle-cell layer that is found the line of division of the decidua when this is expelled, thus leaving the glandular layer with part of the spindle cells adhering to the muscular tissue. At the commencement of pregnancy it undergoes the same histological changes as the decidua vera,

but the atrophy occurs much sooner, generally one month after conception. According to Kolliker, the glands, vessels, and epithelium diminish little by little as the decidua reflexa becomes atrophied, and during pregnancy all its elements disappear. The decidua serotina takes on an entirely different growth. Quite in the beginning it presents no difference in structure from the decidua reflexa and hypertrophies along with it. The vessels increase in size and come into relation with the corresponding villousities of the chorion, and a hypertrophic condition results, which is just the opposite from the atrophic changes in the decidua reflexa. This hypertrophy results in the formation of the maternal placenta, while at the same time the reflexa becomes hypertrophied as well as the vessels they contain, and the result is the formation of the fetal placenta. The atrophy of the villousities extending into the decidua reflexa is complete at the end of the third month, the placenta then being a distinct organ, developing proportionally to the growth of the fetus. It is consequently not to be wondered at that an abortion occurring during the first three months has, as a result, a partial expulsion of the decidua. It is evident that where the most work is going on, namely, in the decidua serotina, that separation is accomplished with more difficulty, and it is precisely here that pieces of the decidua will remain undetached. Vera is better placed to give rise to the production of hemorrhagic metritis, for it is only in a marked condition of atrophy at the end of the fourth month.

As to the question of infection there is much difference of opinion: Some authorities believe that there must be infection in all metritis, and in this particular type infection is limited and local, the decidua debris acting as a good culture medium. As to the treatment of hemorrhagic metritis there is but one, and that is in the curetting of the uterine cavity, done as soon as you are certain that the metrorrhagia is not simply due to the miscarriage, but is a symptom of a lesion of the mucosa that will only disappear by the removal of the retained membranes, for by operating as early as possible you will prevent your patient from becoming anemic from abundant and prolonged bleeding. Curetting should be immediately done if the life of the patient is in danger, but in the great proportion of cases you will be able to control a metrorrhagia due to an abortion occurring in the first few months of pregnancy, by hot vaginal irrigations or with a careful aseptic vaginal tamponade. Attacking the endometrium with the curette should only be resorted to when the metrorrhagia has become symptomatic of hemorrhagic metritis. Curettement is clearly indicated when hemorrhagic metritis has declared itself, and this may safely be said to exist as soon as a second metrorrhagia appears, thus, when a woman who has had a miscarriage, accompanied by a very profuse hemorrhage, has what she thinks are her menses two or three weeks after the flooding, and this supposed menstruation is a real hemorrhage, surgical measures are indicated. In curetting antisepsis should be perfect; the bowels should be moved the night before, and a warm vagina douche of a one per cent. solution of sulpho-naphthol or creolin should be given the night and morning before the operation; in three litres quantities. The vagina should be scrubbed with soap and brush, and the bladder emptied with a glass catheter, which has been kept in a glass filled with a 1 in 100° solution of bichloride of mercury. When the abortion dates back several months dilate the uterus, but if the operation

be performed soon after this has occurred, dilatation will not be necessary. The patient should be put under complete narcosis with ether, but in the infrequent cases in which one of these agents cannot be employed on account of some contraindication, local anesthesia may be obtained with a twenty-five per cent. solution of hydrochlorate of cocaine applied to the mucosa; because the curing of the mucosa destroys the absorbing membrane.

Depress the floor of the vagina with a Simon valve and the cervix lowered by a pair of forceps, care being taken not to exercise too much force. With the Recamier curette you are able to reach all the corners of the uterine cavity, while with the latter you can scrape the anterior and posterior surfaces, at the same time that the irrigation through this curette washes away the debris; a hot intra-uterine irrigation of sulphonaphthol or other antiseptic solution should be kept up by means of a Rheinstaedter curette or a Fritsch sound during the operation. The operation should be completed by drainage of the uterine cavity with sterilized iodoform gauze, which may be dipped in a forty per cent. solution of creosote in glycerine, which has a favorable action on uterine tissues. No elevation of the temperature should follow the operation, and if there should be, the packing is to be renewed, intra-uterine irrigation being also given. When all goes well, the gauze is to be renewed on the second day, and a new strip inserted after an intra-uterine douche. It is always a good plan to irrigate the uterine cavity at the first change of dressings, because it will remove any debris of the mucosa which may possibly remain. Remember that the change of dressings must be done with as much antiseptic precaution as the operation itself. Renew the gauze again on the fourth day, after which time a daily antiseptic vaginal douche will be all-sufficient.

Mikulicz's disease, or "mumps of the lachrymal glands," is described as a symmetrical tumefaction of the lachrymal and salivary glands. This appears to be a distinct morbid entity not previously characterized. Surgeons have not hesitated to excise the glands; but physicians have controlled the affection very well by prolonged use of arsenic or of iodide of iron or potassium. Mikulicz thinks that the lachrymal infection is primary, and that the salivary glands become involved later owing to the anatomic communication between the lachrymal passages and the mucosa of the naso-pharynx.

Localized rales in phthisis appear at a very early stage (H. B. Whitney, *Bost. Med. and Surg. Jour.*, May 18, 1905). Most cases begin at one apex as a mild broncho-pneumonia. The consolidations are too small and scattered to be recognized. Diminution of respiratory movement is imperceptible in very early cases. Severally the pitch is only a little above normal and very slightly prolonged. Localized rales are nearly pathognomonic, especially moist rales or perhaps dryish clicks. Sonorous and sibilant rales occasionally originate outside the lung; they should be sought everywhere but occur oftenest in the supra-scapular fossa. To elicit these there should be a rather rapid and forcible inspiration with open mouth and an expiration as quiet and natural as conditions permit. Another method is to have the patient give a short, quick cough, followed after a very brief interval by the same deep, quick inspiration. Neither coughing nor deep inspiration will produce rales in health.

IMPROVEMENTS IN TYPHOID TREATMENT AND PREVENTION, WITH A DISCUSSION OF PARATYPHOID FEVER.

BY M. E. FITCH, M.D.

THE use of copper foil for destroying typhoid and colon bacilli is agitating our various city fathers. Kraemer in a series of experiments has determined that intestinal bacteria, like colon and typhoid, are completely destroyed by placing clean copper foil in the water containing them; the effects of colloidal copper and copper sulphate in the purification of drinking water are in a quantitative sense much like those of filtration, only the organisms are completely destroyed. In place of the copper treatment of water on a large scale the householder may try a method for the purification of drinking water by the use of strips of copper foil about $3\frac{1}{2}$ inches square to each quart of water, this being allowed to stand over night, or from six to eight hours at the ordinary temperature; the water should then be drained off.

The authorities at Philadelphia have made extensive investigations while Dr. Doty at the New York Quarantine Station has had extensive experience. He has tried copper first alone or with lime to destroy mosquito larvae, then as a deodorant and disinfectant. In the destruction of mosquito larvae and as a deodorant the use of copper with lime is more effective than when used alone; this destroys the larvae by rapidly removing from the water in which they are contained the organic matter or nourishment on which they depend; the result not being due to a toxic effect of the copper or lime. In swamps or bodies of water covering large areas, where fresh water and organic matter are constantly being added, the use of the mixture is not practicable, so its value here is not apparent. In collections of stagnant and offensive water, where the mosquito larvae are frequently found in enormous numbers, the mixture of copper and lime, one pound of copper and one pound of lime, to ten gallons of water added to 500 gallons of water, is of great value, as it not only destroys larvae but deodorizes the fluid. In swamps, where there is usually but little sunlight, and where there is the most active propagation of the mosquito, there is no doubt as to the superiority of petroleum, not only for the destruction of the larvae, but in driving away insects. Copper and lime, or petroleum, should be used only when it is impossible to carry out the scientific and radical measures for the extermination of the mosquito, which is, proper drainage and the observance of the laws of modern sanitation. The action of copper as a deodorant is rapid and permanent; it is harmless, and is cheap and easily made, and seems to comply with the requirements of a typical deodorant; its range of usefulness is extensive, as it can be employed equally well for deodorizing solids or fluids. In tests made with typhoid bacilli; in distilled water, tap water, water from sewers, and broth, it was found that in distilled and tap water a solution of 1 to 10,000 killed in one hour. In distilled water a 1 to 100,000 solution killed in two hours, while in tap water it required from six to eight hours to produce the same result. In water taken from street sewers a 1 to 1,000 solution was required to kill typhoid bacilli in one hour, while in broth it required a 1 to 300 solution for this purpose. A 1 to 10,000 solution in distilled water killed the cholera organism in twenty minutes.

Out of 1,463 cases of typhoid fever, there have been

39 instances of venous thrombosis, a percentage of 2.6 at Johns Hopkins Hospital according to Thayer. Two cases were admitted during convalescence, while one case, a patient suffering from double iliac thrombosis coming on during typhoid fever, entered the hospital for treatment two years later. The onset occurred almost invariably in the third week or later; local pain and fever being usually the first symptoms. The fever sometimes preceded the localizing symptom. In 28 per cent. there were chills, the chill in several instances preceding the appearance of localizing symptoms. As a rule, the condition was associated with an increase in the number of leucocytes, the leucocytosis apparently depending on the extent of the lesion, and in mild cases it may be absent. The thrombosis was seen most frequently in the lower extremities, especially on the left side; the femoral vein being most often involved. In the event of a sudden severe pain in the lower part of the abdomen, coming on during the latter part of the typhoid fever, and associated with a leucocytosis, the possibility of iliac thrombosis should always be remembered and such a condition in a lower extremity is always a serious complication of typhoid fever. Although the immediate danger is not great, the after results are often grave. He comes to the following conclusions: (1) In 42 cases of typhoid thrombosis the onset occurred almost invariably in the third week or later. (2) Local pain and fever were usually the first symptoms. The fever sometimes preceded the localizing symptoms. (3) In 28.2 per cent, of venous thrombosis occurring in connection with typhoid fever there were chills. In several instances the chill preceded the appearance of localizing symptoms. In the past two years I have seen in consultation three further cases in which otherwise unaccountable chills during convalescence from typhoid fever were followed by a complicating thrombosis. (4) Venous thrombosis in typhoid fever is usually associated with an increase in the number of leucocytes. (5) The thrombosis is commonest in the lower extremities, especially on the left side. The femoral vein is involved with particular frequency. (6) In the event of a sudden severe pain in the lower part of the abdomen coming on during the latter part of typhoid fever and associated with a leucocytosis, the possibility of iliac thrombosis should always be considered. (7) Venous thrombosis in a lower extremity is always a serious complication of typhoid fever. Although the immediate danger is not great the after results are often grave. (8) In thrombosis of the femoral vein a greater or less part of the blood from the affected extremity, is often carried up by the iliac vein of the opposite side, the current crossing the abdomen through anastomosis in the hypogastrium, resulting in a characteristic triangular area of varicose veins.

Concerning the growth of the bacillus typhosus in soil, Martin's conclusions are as follows: (1) Cultivated soils are most favorable to the growth of the bacillus, and in them it may retain its vitality as long as four hundred and fifty-six days, even when the soil has become so dry that it can be finely powdered. (2) All virgin soils, sandy or peaty, moist or dry, are inimical to the growth of the bacillus, which eventually dies out, both at the surface and at a depth of three feet. (3) In favorable soils, in a moist condition, the bacillus flourishes, not only at 37° C., but at much lower temperatures, viz., 24°, 16°, 9°, and 3° C. (4) In soil favorable to the typhoid bacillus, the cholera vibrio was

found to be alive and vigorous after sixty-eight days, and the bacilli of diphtheria and anthrax are alive and pathogenic after sixty-six days. Robertson placed typhoid bacilli in soil, which was watered occasionally with solution of organic matter. The bacilli were still present at the end of three hundred and fifteen days, during the winter months.

Professor Hare in the light of growing experience believes that the pure milk diet in typhoid fever is wholly inadequate, so he gives all patients after the first week of typhoid one or two soft-boiled eggs daily in addition to the ordinary allowance of milk; he changes the diet by the use of curds and whey, rice which has been boiled to a pulp, barley, wheat and oatmeal gruel, and a cup of cornstarch with vanilla or some other flavoring substance of a like character. He very rarely sees marked ataxia, so commonly a symptom in convalescence; and the patient's nutrition is so well preserved that he is but little more emaciated than many cases of acute pneumonia at the time of recovery, while secondary complications like furuncles and bedsores are unknown. He believes the average case of convalescent typhoid fever is a fair mark for any infection, because the patient is really half-starved. Recognizing that typhoid fever is characterized by a deficient secretion of digestive juices, all his patients receive hydrochloric acid and pepsin with their proteid foods, and take diastase and pancreatin when carbohydrates are used. He opposes the use of beef tea, which he believes acts as a first-rate culture medium frequently increasing tympanites and diarrhea, and the stools become infected under its use. The modern method of treating typhoid by cold depends in great part for its value on the fact that when cold bathing is used the patient, who is undoubtedly suffering from a form of toxic neurasthenia, receives a form of rest cure which maintains strength and puts him in first-rate physical shape; but the free use of cold water is not the chief factor for good in these cases, for the massage which follows these baths is of the very greatest importance, aiding the dissipation of body heat, readjusting the circulation and exerting on the patient the beneficial effects which follow the use of massage as seen in the rest cure treatment of neurasthenia. Therefore, Hare advocates the employment of the Weir-Mitchell rest cure in the treatment of typhoid fever. Equally good results can be obtained if these patients are properly sponged, with friction, instead of being plunged, which possesses the additional advantage that the patient does not have to be moved from his bed, that the great muscles of the back can be given more attention than the anterior portion of the body, thereby increasing the dissipation of heat very greatly and preventing the formation of bed-sores. Patients with a temperature below 102.5 should be given tepid baths with friction. Since he has been feeding his patients, Hare finds that they need less alcohol than formerly, probably because the patient burns up food products in the body instead of burning up alcohol.

The ingenuity of medical observers seems to have no limit. Tinossien and Tanois made some ingenious experiments with guaiacol in typhoid cases. They impregnated a napkin with guaiacol, which was held from ten in the morning until four in the afternoon before the mouth of a young patient convalescent from typhoid fever, with marked fever and subcutaneous abscesses; at the end of that period, the urine contained only 0.1 in 1,000 of guaiacol. Several days afterwards the right

thigh was painted with 30 grains of guaiacol, many precautions being taken to prevent pulmonary absorption, and the painted part immediately covered; during this time the patient breathed behind a screen. Six hours after the painting the urine showed 0.9 in 1,000 of guaiacol, and the temperature fell two degrees. The extent of the surface on which the guaiacol is painted made a difference in its effect; thus in the same patient 30 grains were painted first on a surface of a hundred and eighty square centimetres, and afterward on three hundred square centimetres. In the first case, after three hours, the urine contained 9 grains of guaiacol, and the second, after two hours 33 grains in 1,000. Absorption seemed to be more rapid on the thorax than on the limbs; in this respect, certain conditions also must be taken into account, such as age, sex, and the nature of the skin. They came to the following conclusions: (1) Guaiacol applied by painting is absorbed by the skin, and this absorption is produced, at least in a great measure, by its vaporous state; (2) The absorption is very rapid; fifteen minutes after painting, the medicament may be detected in the urine. During an hour and a half the proportion increases little by little, and attains its maximum in from an hour and a half to twenty-four hours; (3) After twenty-four hours the total quantity of 55.5 per cent. of guaiacol may be found, after the skin has been painted with from 30 to 60 grains of guaiacol. The absolute quantity found in the urine has been as much as 32 grains after an application of 60 grains, and 50 grains after an application of 150 grains. (4) Cutaneous absorption is such then that it permits of saturating the organism without recourse to the digestive or subcutaneous method.

As to operations in perforation, we are now coming to the idea of operating in the "preperforative stage." When symptoms of a localized peritonitis appear, the patient should be kept absolutely quiet, and tubs omitted, especially if they are disagreeable and resisted; call in a surgeon in this stage of the course of the fever. In the preperforative stage appear local rigidity of the abdominal wall, usually an increased leucocytosis, local pain and tenderness of the abdomen, possibly nausea and vomiting, possibly an increased rise in the pulse and temperature. The symptoms of the perforative stage depend in almost all cases upon the extravasation of the cavity into the peritoneal cavity. With those rare exceptions in which a large blood-vessel of the intestine is eroded by the ulcer and in which the signs of internal hemorrhage are constantly present, the perforation in itself does not give rise to any symptoms. Where the perforation is large, permitting of extensive extravasation, the reflex symptoms of shock will be very marked, such as collapse, fall of temperature, cold, clammy skin, rapid feeble pulse. It is of the utmost importance to examine the abdomen frequently for evidence of local rigidity in typhoid. In patients with a distinct preperforative stage the sudden appearance of symptoms of shock when present clearly indicates perforation with extravasation. In these patients with a distinct preperforative stage, a decreasing leucocytosis and increasing abdominal rigidity with or without the previous signs of collapse demand immediate surgical interference. The repair of the ruptured typhoid ulcer should be undertaken as soon after the perforation as the patient can stand the necessary laparotomy and possible eversion. Still operation in the preperforative stage is not to be considered as the rule as yet.

In actual intestinal perforation and peritonitis occurring in typhoid we have now many statistics; one of the most recent collections was by Haggard in a recent issue of the *American Journal of Obstetrics*. Since the first operation done by Mikulicz in 1884, 295 cases have been published, and probably as many more unreported. Probably 25,000 persons die annually from this cause, and a third of these could be saved by timely operation, but the physician hesitates to call the surgeon, or death may come in spite of an operation, or the diagnosis may be obscure. Ordinarily the accident would occur in the third week of the fever, which may have been following a mild course, pain suddenly coming in the right lower quadrant of the abdomen, with collapse, subnormal temperature, pain, tenderness, and rapidly increasing leucocytosis. These symptoms indicate an abdominal section as quickly as possible. 80.9 per cent. occur in men, 19.1 per cent. in women. It is rare in children. It occurs in 2.5 per cent. of all cases of typhoid fever. 3.31 per cent. occur in the first week, 20.19 per cent. in the second, 38.94 in the third, 14.40 in the fourth, 9.13 in the fifth, 5.75 in the sixth, 7.21 from the seventh to the eleventh, and it has occurred as late as the hundredth day. It occurs more frequently in severe attacks, and may be the first marked symptom of walking typhoid. It occurs in the ileum in 95.5 per cent., usually within 18 inches of the cecum, always within three feet. It occurs in the large intestine in 12.9 per cent. of cases, and is most often situated in the ascending, transverse, and descending colon, the sigmoid flexure, and rectum, in the order mentioned. It may also occur in the appendix, Meckel's diverticulum, and the jejunum. The perforation is single in 84 per cent. of cases. Tympanites may be said to be predisposed to the accident. According to Murchison, the death rate is 90 to 95 per cent. Osler does not recall a case in his experience which recovered. It is possible to make an incision and find no perforation. The incision should be in the right iliac region unless there is general peritonitis, when a central incision is to be preferred. If an ulcer is found it may be trimmed, excised, or inverted. A mattress suture is preferable, and it may be transverse or longitudinal. Search should be made for other perforations, and resection practised if there is much destruction of the issue, but an artificial anus is preferable in debilitated patients.

In a recent issue of the University of Pennsylvania *Medical Bulletin* Fox studied the aberrations of typhoid fever which have been long recognized. Eberth described the epidemic at Kloten in which there were 600 cases, the general clinical picture of which corresponded as much to the usual typhoid as to meat poisoning; the origin was undoubtedly the distribution of the meat of a sick calf. There were roseola and enlarged spleen, but it was unlike the fever in its short incubation, mild course, and low mortality (under 1 per cent.). Eberth made an autopsy on each of the two fatal cases and found in the gut and mesenteric changes which corresponded to a true typhoid. In reviewing this epidemic he considers the following questions open: Was the Kloten epidemic the usual abdominal typhus? Was it an abortive type or an infectious process probably related? Is there only one true typhoid fever, or is the so-called typhoid fever met with in several forms? The reasonable doubt of the identity of these atypical cases has become a fact, proven by the same criteria as true typhoid fever, the etiological factor differing from the

bacillus of Eberth and Gaffky about as the symptoms approach or disagree with that disease—i. e., the closer the symptoms of the attack the more alike are the biological characters of the organisms apt to be. The first account of "paratyphoid fever" dates back only to 1896, when Achard and Bensaude isolated from the urine of one case, and pus of an abscess at the sternoclavicular articulation of another, organisms which were practically identical. These cases were clinical typhoid fever with striking symptoms, but not sufficient to justify the diagnosis until the micro-organisms were found. The patient's blood reacted in dilutions of 1:1,000; no tests were made with bacillus typhosus with the patients' blood, but antisera of animals immunized against the isolated organisms had no effect upon it, while they agglutinated the corresponding organisms highly, justifying to the reporters the assumption that they were the responsible factors. Again in Paris, Widal, 1897, found a para organism (para is used for all the intermediates of the typhocolon group, pathogenic for man, when a specific type is not needed or given, for the sake of simplicity) in an abscess in a phthisical patient, and considered it the cause of the pus and the slight constitutional symptoms accompanying it. Gwyn, 1898, and Schottmuller, 1900-01, contributed reports of 7 typhoidal cases from whose blood they obtained paratyphoid organisms. The specificity of their cases was shown by serum reactions, while the bacillus typhosus was not affected by the sera.

Fox writes that no effort is made to describe a new disease on clinical evidence alone, but the variations of this clinical picture can be made comparable to the relation of their causative factors, the paratyphoid bacillus with its subdivisions "A" and "B" and some differences, not absolute or well defined, but reasonably clear, may be said to be presented by the literature at present in each of these types. The clinical picture of a single case of paratyphoid fever offers nothing to serve as a diagnostic criterion, but many cases collectively may show considerable deviation from the classical picture of abdominal typhoid. The most suggestive fact is the absence of the serum reaction with the bacillus typhosus. According to the statistics of the Johns Hopkins Hospital 2 per cent. of all cases of typhoid fever present a negative Widal, but only 0.4 per cent. of proven cases give no reaction with the bacillus typhosus. Here is a discrepancy that may be explained by the inclusions of paratyphoid fever cases in the first figure. The mortality to date is about 6 per cent., but this will depend upon our opinion of the completeness of data used in making the diagnosis. The incubation is placed as the same as typhoid fever by Hunermann, who studied the epidemic at Saarbrücken. The stage of invasion is quoted by authors varying from three to eight days, and consists of headache, malaise, sometimes epistaxis, weakness and depression occasionally quite marked. Schottmuller and others especially mention congestion of the conjunctiva and upper air passages. A few times mention is made of swellings of the cervical lymph glands and twice of the inguinal. Herpes has been noted and in Longcope's fatal case were present on lips and nose. Neither diarrhea nor constipation seem to show any supremacy in percentage; they are sometimes accompanied by severe pain in the abdomen. The onset of the fever is very frequently rapid, but in the majority of cases, however, it is the usual step-like advance to the height. After attaining its height the temperature may assume the con-

tinued type for a few days, but this period is rarely long and is succeeded by marked remissions that do not ascend and descend near the same time of day as in the case with typhoid fever. This may end in an irregular lysis or a crisis with the symptoms usually accompanying such a temperature fall. The duration of the fever is quoted by Clemens as varying from ten to twenty-two days, but by averaging the days mentioned on thirty-one temperature charts the writer obtained an average of 23.3 days.

Roseola are to be found in 80 per cent. of the cases and may be single or in clusters on the abdomen, hands, face, and, according to Brill's cases, very frequently quite marked on the back. According to Hunermann's observations in the epidemic before mentioned, they appear quite regularly about the twenty-first day after the infection. The spots are clear and frequently dark red. Among other skin eruptions are mentioned scarlatinoid, dark macular spots, and petechiae differing clearly from roseola. The tongue and pulse are the same in character as seen in typhoid fever, including dicrotism of the latter. Bronchitis is mentioned in 25 per cent., and more serious pneumonic processes do not seem to be uncommon. Epistaxis is mentioned in 5 cases, in one of which it occurred twice during the invasion period. Of intestinal symptoms we may find noted all that are present in typhoid fever; vomiting is found occasionally, and in one case it was specially obstinate. Diarrhea is found at one or another time of the course in 60 per cent., and Brion gives a percentage of 18 for the presence of soup stools. Some cases have during their course both diarrhea and constipation. At least no material difference can be made out concerning the bowel movements of these disease forms. Pain in the upper part of the abdomen is occasionally mentioned. In some cases of this form of typhoid intestinal symptoms are entirely lacking. The spleen is enlarged and usually palpable in two-thirds of the cases; only three times is mention made of its normal size. Intestinal hemorrhage is encountered nine times, or 10 per cent., this percentage is made on the whole number of cases regardless of certainty of diagnosis, and when this is taken into consideration with the pathological anatomy it will be difficult to explain. So, too, the pathology will suggest a reason why perforation is not yet mentioned, the few intestinal lesions noted are quite superficial. The urine is usually febrile, containing albumin, sometimes casts, very many times bacilli, and the diazo reaction may be obtained in about a third of the cases.

Four times is mentioned indican in excess and once peptone. Brill's cases gave no indican, acetone, or diacetic acid reaction. Any degree of mental disturbance from depression to the typhoid state may be present. I do not find any reference to the symptoms of spinal irritation called meningismus. The leucocyte count, according to Gutig, establishes an analogous picture of typhoid fever, especially with the neutrophiles. There is leucopenia, followed, in the decline, by lymphocytosis (54 per cent.), and a relatively large number of eosinophiles (10 per cent.). Relapses are mentioned in about the same percentage as typhoid fever, and may follow the initial attack or occur some time later. They bear the same relation to the main attack as is the case in typhoid fever, while in one case (A) two relapses are reported, the second being complicated by a phlebitis in the left thigh. The limits of the disease, including the relapse, is placed by Johnston at twelve to eighty-four

days, but he says, "with the exception of the mild cases and in Gwyn's case, the duration of the fever is little indicative of the severity of the attack." The age of the patients varies between seven months and sixty years, the greater majority being between twenty and thirty years. Men are more frequently affected than women, three to one. The largest number of cases have occurred from July to November.

Studying the bacteriology of paratyphoid fever let us examine the etiology of this condition, which has been proven biologically different from true typhoid fever. A strict classification of the colon group that is without objections has not been published for many reasons which are not in the province of this paper, but it suffices to say that there are very many different groups within this series, and while the members of these groups are not identical, they agree sufficiently to be classed together. The classical paper of Durham and the description of six strains of paratyphoid organisms obtained by Schottmuller approach the classification of these intermediates from the cultural standpoint, while Buxton combines clinical and bacteriological characters, in his orders. The study of this latter supplies a very good working basis since it broaches the subject in this way, thereby serving us as a good introduction to the colon group. This author studied twenty-five cultures of many members of this series, including *B. coli communis*, *B. typhosus* (4), *B. enteritidis*, *B. typhi murium*, *B. cholerae suis*, *B. dysenteriae* (4), *B. Hatton* (Durham), two of Schottmuller's strains (different types), strains isolated by Gwyn, Cushing, Strong, Johnston (3), Libman, Hewlett, Kurth, and himself. He suggests the following classification for all members of the intermediary groups (except *B. dysenteriae*) between the *B. coli communis* and *B. typhosus*: 1. Paracolons causing no typhoidal symptoms in man, composed of many different members, but culturally alike. 2. Paratyphoids causing typhoidal symptoms in man, and subdivided into (a) those cultures distinctly unlike the paracolons; (b) those culturally, resembling paracolons, but a distinct species. The work of Cushing, Johnston, Schottmuller, Brion, and Kayser in their end results have established nearly identical pictures of the biological reactions of these paratyphoids, and the few individual differences displayed by some of their cultures, and strains described by other authors in their notes of sporadic cases, do not sufficiently disagree to be mentioned. It should be emphasized that these cultures do exhibit individualisms like different strains of any other type. This is notoriously true of the colon bacillus and their allies. The overlapping of biological characteristics is so common as to be misleading at times, and some hope is laid in special serum reactions for the separation of those closely allied. Another point which should be mentioned in the etiological and clinical aspects of these intermediates are the meat poisoning symptoms caused by some of them, and one group is called the meat poisoners. The paratyphoids "B" are very near biologically to this group, and further on analogies will be made to symptoms and pathology found in cases caused by them. Buxton says: "Between the paratyphoids 'B' and paracolons no sufficiently clear cultural difference can be observed, and I doubt if it is desirable to attempt to classify the paratyphoids 'B' and separate them from the paracolons." In Buxton's grouping the paracolons, group L., consist of *B. enteritidis* (Gartner), *B. Hatton* (Durham), *B. cholerae suis*,

B. typhi murium, and one strain isolated by Johnston. The "A" paratyphoids include strains isolated by Gwyn, Cushing, Schottmuller ("A"), Johnston (2), Hewlett, and himself. Among the paratyphoids "B" he places organisms obtained in the cases of Schottmuller ("B"), Kurth, Libman, and possibly Strong, but this last will be found to give some points which seem to exclude it.

Fox comes to the following conclusions: 1. Paratyphoid fever differs from typhoid fever in (a) a shorter invasion stage and rise of temperature; (b) shorter or absent period of continued fever; and (c) marked diurnal remissions of temperature, much deeper than enteric and without periodicity. An absence of the Widal is suggestive, if it persist in reasonably high dilutions. 2. The duration is on the whole shorter than typhoid and the cases where Type "B" was adjusted the etiological role is more striking than in the Type "A" cases. 3. The general findings of the Type "A" cases are nearer to typhoid than Type "B," the latter presenting a picture more like septicemia. 4. The complications of Type "B" infections are more numerous, more purulent, and the course is more fulminating in these cases. 5. The causal germs belong to the intermediates of the typhocolon series, the Type "A" being nearer to the bacillus of Eberth and Gaffky, while Type "B" approaches the meat poisoning group. 6. The clinical evidences of the respective organisms just named agree with their general properties and relations to infections in this order, ranging from the subacute typhoid to the hyperacute meat poisoning. 7. Antityphoid serum will clump the paratyphoid "B" at the same time as the *B. Typhosus*, sometimes even in higher dilutions; so that a positive reaction of a patient's serum to both *B. typhosus* and paratyphosus "B" even if the latter be in higher dilutions, will not permit a diagnosis. On the other hand, only twelve times in 94 cases of typhoid fever did the serum react with the Type "A" paratyphoid; so that a positive reaction with Type "A" and not with the bacillus of Eberth may be taken as nearly a proof of the existence of an "A" paratyphoid infection. 8. That there must be some other factor responsible for coagglutinations than an increased value of the agglutinins normally present in the blood seems probable. 9. That the best proof of the existence of a para infection is the isolation of the bacterium, the saturation test, and, last, the bactericidal action.

In chronic colitis Shoup (*Am. Med.*) promotes thorough evacuation by castor oil *per os* and high enemas of oils or of alkaline solutions; hypodermics of morphine and atropine, for the attack of pain which precedes the passage of mucus. There should be an examination of stomach contents, after which appropriate diet should be selected, particular attention being given to allay fermentation. There should be suitable support to overcome ptosis of abdominal organs. (This Einhorn considers very essential). There should be local treatment by means of astringent enemas and oils and topical applications when necessary. There should be sufficient rest in the recumbent position, with change of air to mountains or seashore, when possible.

The New Orleans Picayune loving cup, which it is the custom of that paper to present annually to some citizen who has been instrumental in accomplishing some good for his city, will this year be presented to Arthur W. De Roaldes for his labors in behalf of the Eye, Ear, Nose and Throat Hospital of New Orleans.

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It takes a good deal of time to eat and sleep, or to earn a hundred dollars, and a very little time to entertain a hope and an insight which becomes the light of our life.—Emerson.

INTERESTING FACTORS IN ENTEROPTOSIS.

THE liver is now to be deposed from its exclusiveness and pushed around and operated on as if it were some ordinary organ, like the appendix or the kidney. Operators are beginning to give results in operations for various hepatic conditions, including prolapse. Three such cases have been recently reported by Elliott, in which the patients were free from symptoms six months after operation. His method of operating is as follows: The liver and stomach being exposed by a median incision above the umbilicus, the obliterated umbilical vein, forming a thick cord in the free edge of the falciform ligament, is identified and drawn forward until it comes in contact with the parietal. The hepatic extremity of the ligament rests against the under surface of the right lobe of the liver in front of the transverse fissure; while the umbilical extremity is in contact with the anterior parietal peritoneum, the two portions of the ligament forming a right angle. The round ligament is sutured to the anterior parietal peritoneum with chromic gut and the redundant falciform peritoneal reflection is spread out laterally and sutured to the contiguous portion of the parietal peritoneum with the same material, in this way forming a species of shelf for the under surface of the liver. The abdominal wound is then closed in layers.

The term enteroptosis, first described in 1885, by Glénard, means literally a falling down of the intestine, but its use has been broadened by this French observer to include any condition in which there is a tendency to prolapse of one or more of the abdominal viscera. The descent of each organ separately should be called by its own name with the suffix "ptosis," such as gastropptosis, nephropptosis, hepatopptosis, and colopptosis. While such eminent authorities as Einhorn, Wolkow, Kel-

logg, Delitzin and Boweret, have laid stress upon the rôle played in the production of this condition by "tight lacing," still this is by no means the sole cause. This is shown by the fact that enteroptosis occurs in men and women who never wore a corset. Still it is a weakened abdominal wall that seems to be responsible largely for the condition, while Stiller has shown the curious fact that many of these patients exhibit a floating tenth rib, the so-called "costal stigma of Stiller."

There may be a variety of reasons for this weakened abdominal wall; it may be congenital, or come from sudden losses of adipose tissue or from abrupt changes in the volume of the abdominal contents. Of course, it is a well demonstrated fact that the condition is far more frequent in women; Glénard believes it occurs in one woman out of every four with digestive troubles. Einhorn, in an examination of 1,912 patients, the majority of whom were dyspeptic, found 240 cases of enteroptosis, only twenty being in men.

Normally there should be no tension-pressure from the abdominal walls upon the contents of the abdomen; Meltzing investigated the question in cadavers, and found that the hydrostatic pressure is equal in cm. to the distance that the measured point is removed from the highest portion of the abdominal cavity, and therefore concludes that the pressure is not due to the abdominal walls, but to the hydrostatic pressure of the contents. In normal positions, experimenting upon himself, there was no negative pressure, but there was negative pressure when he assumed the knee-elbow or the inverted position. Meltzing believes there are two distinct varieties of enteroptosis; the first, which he calls "pure enteroptosis," results from overstretching of the abdominal walls, which forces the ligaments into play and causes them to be overstretched from the falling of the organs, a negative pressure results in the upper abdomen, and for its equalization the diaphragm must descend, and the blood vessels and lymphatics in this region become overdistended. Disturbances of the heart-action, of the sympathetic nerves, and of the circulation follow. The other form of enteroptosis is due to distortion of the abdominal organs from compression, chiefly from tight lacing; this lacing may cause forward pressure upon the abdominal walls, but a general ptosis does not result unless the abdominal muscles are weak and give way, producing combination of the pure enteroptosis and enteroptosis from distortion. In the latter form, if the abdominal walls are strong, there is no change in the size of the abdominal cavity, but the muscles give way only sufficiently to compensate for the downward pressure of the diaphragm; or the force is directed upward, so that the normal size of the abdominal cavity is retained at the expense of the thoracic cavity; this is not really an enteroptosis.

Langerhaus distended the stomach by attaching a condom to the end of a stomach-tube, and after intro-

ducing this distends the condom by pumping in air; in this way he believes he obtains a better idea of the size and position of the stomach than by any other method. Langerhaus believes that nervous dyspepsia may lead to gastropnoxis in somewhat the same way as chlorosis, and thinks that there is at times, an hereditary tendency to gastropnoxis. He does not believe in the existence of a negative intra-abdominal pressure and that abdominal bandages are of use only in the treatment of the postpuerperal form; he recommends gymnastic exercises and careful treatment of the nervous system. Bial is a revolutionist in this field, for he finds that after application of binders in cases of gastropnoxis the stomach is not elevated in the least. He is inclined to attribute the effect of binders to suggestion, and believes that the effects of gastropnoxis are practically nothing, referring all the symptoms to the neurotic condition of these patients.

This teaching is a little too radical, but it is a question whether the condition is not made actively worse by directing the patient's attention to her condition.

PRIZE ESSAYS—NO AWARDS.

THROUGH the generosity of individuals or the appropriation of funds by medical organizations, there are annually offered in this country, several prizes of considerable value, for original research or compilations. For the most part, these prizes are open to the widest competition, many being explicitly free from any restrictions save ordinary standards of medical legitimacy and most of them are restricted only in accordance with the general geographic scope or *raison d'être* of the society under whose auspices they are awarded. As a rule, it is not required that competitors be actual members of the society in question, but only, for instance, that the prize of the New York State Society should not be open to competition by a resident of Alabama or some other state, or that a gynecologic society would not accept in competition an essay dealing with laryngology.

So far as we have known, there has never been any seriously-meant and substantiated charge of unfairness made against the committee of award of any general prize though, doubtless, many disappointed competitors have not been entirely reconciled to the choice of the committee.

It has surprised us to note, however, the frequency with which committees have reported against making any award whatever. Our recollection is that the Alvarenga prize of a trifle over \$180, open to competition by any American practitioner in good standing, has not been awarded but twice in five years. The prize medal in medicine of the American Medical Association was first offered for the 1900 meeting. The medal was hand-carved. It was, of course, the intention to

have a die made, but the committees of award rejected all essays submitted for the next three years and in 1904, the medal was officially discontinued.

The failure to make awards can scarcely be considered an indication that essays are not forthcoming in competition. In 1902, the Maltine Company offered two prizes, of \$1,000 and \$500, respectively, for essays on the prophylaxis of disease. Two hundred and nine essays were received in competition. No statistics are obtainable with regard to other competitions, but it is scarcely conceivable that medals and cash prizes offered to a constituency of several thousand physicians, many of whom are highly educated and ambitious young men with very little practice, should fail of response.

We are inclined to believe that the committees of award may overrate the standard to which they are expected to adhere. Obviously, a prize is not intended to apply merely to a good piece of writing nor to a report of a rare case the opportunity of observing which, must be considered as largely a matter of chance. Some degree of originality, coupled with considerable study of preceding work along the same general line, ought to characterize every successful prize essay. A rehashing of ordinary text-books is a simple matter, not in keeping with the standard to be expected in a prize essay. On the other hand, a careful and thorough compilation from periodical literature is of immense practical value to busy students and we can imagine that a prize might well be awarded for work of this nature without any strictly original observations or experiments.

It is difficult to state in general terms just what should be considered adequate labor and success, in competition for a prize. Yet we believe that a fair basis of award is indicated by the amount of the prize itself. For example, if the prize is \$100, it ought to be easy for a committee to determine whether any of the competitive essays represent a value of \$100, either in the sense that the contribution to science is worth that amount or that the time and expense invested by the competitor represents a corresponding amount.

It should be remembered that any competition represents the essential elements of labor and remuneration, but with this important contrast to ordinary exchanges of work and pay, that the competitor expects to give the fullest value and yet with the chances many times to his disadvantage in that it is not a question primarily between the excellence of his effort and the amount of the possible remuneration but rather as to the transcendent excellence of one among several or many efforts. In the choice, moreover, one essay may be selected among a number simply because it appeals to the special interest of the committee. This disadvantage ought, it seems to us, to be partially balanced by the assurance of an award to the best essay submitted, un-

less the same is grossly inadequate and not deserving of serious consideration.

We have recently looked over a competitive essay for which no award was made. The unsuccessful competitor was not disposed to complain if any one else had received the prize, but he felt that, if no better essay had been submitted, he certainly should have received the award. How many other competitors in the same contest have the same feeling, we have no means of knowing. This competitor claims that his effort represents an actual expense for typewriting of about ten dollars; for laboratory material and breakage in the series of investigations of at least an equal amount. The essay represents direct experimentation and study with the idea of competition specifically in view, covering a period of nearly two years. For over a month, laboratory investigations were in progress, of such a nature that they could not be left for more than eight hours at night nor for more than four or five in the daytime. With the object of the competitor's essay largely in view, a course of a month of half-days was taken under competent instructors, in a large institution. Simply with reference to a point "mentioned in passing," 500 clinical observations on over half as many subjects were tabulated. Many hundred laboratory examinations were made in direct bearing on the subject in question. The literature, in two foreign languages as well as in English, was quite thoroughly studied, though the novelty of the investigation rendered a systematic search of periodical literature unnecessary. The purely arithmetical computations necessary in tabulating results, represented at least three full days' labor and at least one full additional day was spent in preparing diagrams. The investigation carried with it abundant evidence not only of thorough medical but of scholastic education, in the two languages mentioned, analytic geometry and chemistry, including certain phases of physics. The study could not possibly have been carried on without interruptions nor without actual clinical facilities which obviously necessitated other interruptions. The writer, however, estimated that if it had been possible to carry on the study continuously, it would have occupied about two months with working days of ten hours each. The prize, if awarded, would have been equivalent to an allowance for actual expenses and wages at about \$1.25—\$1.50 a day.

Without attempting to pass judgment upon any individual claim, we can hardly believe that prizes are offered year after year, without eliciting responses representing bona fide studies in the various branches of medical science, worth the prize, simply regarding it as wages. The object of such prizes is to stimulate medical research and to add to the sum total of medical knowledge. We hold that the standards adopted should be such as to allow competition by any well-equipped physician, that the minimum requirement should be

approximately commensurate with the value of the prize and that due credit should be given for any thorough study, whether leading to positive or negative results. The general precedent of our profession is to estimate values rather by work than by a speciously brilliant result. So, in regard to medical research, it is not usually possible to foretell whether a given line of investigation will lead to some astonishing new discovery or whether, after much labor, it will simply have been shown that the passage is a blind. What the medical profession needs most of all is a record of thorough investigations along various plausible lines and absolute facts. It is not so satisfactory to overthrow an accepted theory as to build up a new one, not so satisfactory to end a long series of experiments with guarded and conservative statements, as with claims of a wonderful discovery. But, we want the truth, whatever it is and we should neither tempt the setting forth of specious claims nor refuse just recompense to one who has drilled deeply after treasure and found only an unprofitable rock.

After all, we question seriously the wisdom of the system of encouraging research by prizes. We would rather advise granting the prize in advance. That is to say, medical societies might better establish research funds from which small grants may be made to prospective investigators who may be able to demonstrate to a committee, their good faith, and the reasonableness of a line of investigation which has occurred to them.

THE MOSQUITO CRUSADE.

MANY efforts have been making during the last few years to destroy the mosquito, which besides being an instrument of physical torture, is now known beyond peradventure to be the main propagator of malaria. Failures among such efforts have for the most part been due to lack of thoroughness in the proceedings—such thoroughness and attention to detail as is essential to combat any infection. We recall a conversation with a bucolic gentleman whose home is in New Jersey and who had for one season contributed to a fund raised in his community for the extermination of the mosquito by the use of oil and other modern procedures upon the swamps and pools in the neighborhood. The next summer the mosquitoes swarmed as thick as ever; wherefore this gentleman declared he "Would be gosh dinged (or words to that effect) if he'd give them fool doctors another cent" for a renewal of their efforts. Not wishing to seem forward we did not ask if he had taken the trouble to cleanse and purify his own cesspool.

This but emphasizes the observations of Health Officer Doty in the *New York Times*, whose experience has taught him that in a mosquito crusade, public effort without private co-operation is likely to be disap-

pointing and perhaps futile. He has planned now to rid Staten Island of this pest and declares that all the crude oil in the country, and even the cutting of the tall grass—which measures are in themselves only palliative—will do no good unless the inhabitants themselves will get rid of all cesspools and spots on their premises where the insects can breed. It is very essential that the public be made to comprehend this; if the individual will do all he can to reduce the pest to the minimum on his own premises, the health authorities will be able with this addition to their own efforts, to prophesy a very great measure of success. Moreover, Boards of Health should in their sanitary codes make the maintenance of mosquito-breeding conditions a public nuisance, involving penalties adequate to discourage negligence. This is not merely a question of comfort; diseases of the material type are extremely prevalent, often dangerous to health, and sometimes even fatal, either directly or as a contributory cause.

TETANUS.

THIS dreadful and generally fatal disease claims many young victims after "the Fourth," at least 400 every season. The bacillus has its habitat mostly in earth and sometimes in putrifying fluids or manure. The infection occurs generally by means of the introduction of germ-laden dirt into wounds, sometimes very slight, especially of the hands and feet. Punctured wounds, such as are caused by nails, or contused wounds are more viable than such as are clean-cut.

The bacillus is considered not to transverse beyond the site of the injury and not to enter the lymph or blood channels. The toxins, which it generates, are the virulent factor. The symptoms develop slowly and may not become manifest until a fortnight after the traumatism. There will be rigidity of the neck and the jaws, difficulty in mastication and swallowing, chills, rigors, asphyxia and spasms of various muscles. There may be the *risus sardonius*—the eyebrows raised, the angles of the mouth drawn out,—and with opisthotonos or some modification of this contortion. The respiration will be rapid, there will be profuse sweat, chills and temperature, perhaps, beyond the thermometer's scale.

The mortality is 80 per cent. If the spasm limits itself to the muscles of the neck and jaw and there is little fever, one may hope for recovery.

Several things are essential to bear in mind concerning tetanus. Pronounced symptoms represent, not the onset of the disease, but the beginning of the end. Seven-eighths of the wounds, which develop tetanus are inflicted by blank cartridges. Most of the remainder are due to giant firecrackers. Therefore, these two forms of fireworks should not be allowed children. Practically no tetanus cases have resulted from roman candles, display pieces, torpedoes, paper

caps or small firecrackers. Local treatment should at once be instituted on the open wound plan, with strong peroxide of hydrogen solutions. Deep wounds, such as those due to a nail or the tines of a hay fork, or where the paper wad of a blank cartridge is carried into the tissues, must be cleansed, enlarged if necessary, and packed from the bottom with gauze. Wherever there is the slightest apprehension tetanus antitoxin should be injected. The Health Department in New York City has this serum always on hand and each vial is accompanied with directions and dosage. Eserine internally or by hypodermic gr. 1/48 every 2 hours; and tincture of lobelia, an initial dose of ten drops, increasing the dose by one drop every two hours, are drugs that have been advocated with the hope of relaxing muscular spasms. Much cannot be claimed for them.

THE FEAR OF CATS.

DR. WEIR MITCHELL has produced a very interesting paper upon this theme, (*Am. Med.*, May 27, '05), in which he enumerates classes of people who have this fear, which he terms ailurophobia. There are those who have cat asthma; those who have fear on seeing cats, without sequent, excessive or emotional manifestations; those who manifest such emotions when a cat is near, though unseen by them; those who can smell a cat without seeing it. Besides these, cases occur "in which the consciousness of a cat as present through its smell once existed, but does not now, and yet the ability to detect unseen cats remains." Dr. Mitchell considers that cat emanations may affect the nervous system through the nasal membrane, although unrecognized as odors. He has made an extensive study of this strange manifestation and by means of many responses to questions upon the subject asked him in *American Medicine*, has been able to collect a great many data. His researches have brought to him indisputable evidence concerning a large number of people in whom the presence of a cat gives rise to a variety of symptoms—oppression of breathing, fear, terror, disgust, chilly sensations, horripilation, weakness, locked jaw, fixed open jaw, (in one case), rigidity of arms, pallor, nausea, vomiting (rarely), pronounced hysterical convulsions, "cat-mares"—even temporary blindness. These symptoms pass away with the removal of the cat but may leave the sufferer nervously disturbed for the day. In at least one-fourth of Dr. Mitchell's cases terror in grave form is a family peculiarity. Five in a family of seven had it. In another family the maternal grandfather, two great-aunts, an uncle and a sister were all thus troubled. Sex appears to have no marked influence, but extreme symptoms are more frequent in women. The author relates the following odd case:

"In my own family, an uncle was the subject. My

father, the late Professor John K. Mitchell, having placed a small cat in a closet, with a saucer of cream, asked Mr. H. to come into the room and look at some old books in which he would be interested. He sat down, but in a few minutes grew pale, shivered, and said: 'There is a cat in the room.' Dr. M. said: 'Look about you. There is no cat in the room. Do you hear one outside?' He said: 'No, but there is a cat.' He became faint and complaining of nausea, went out and promptly recovered."

Dr. Mitchell cannot explain the ultimate cause of this unreasonable terror of cats. Neither can we. In fact, it is to us inexplicable. We should never, for our part, provide an addition to Dr. Mitchell's case records. One among these graceful and agile creatures usually occupies a welcome place at our hearthstone. We recall with no little regret a cat that has recently passed from our home, whose acrobatic feats, such, for instance, as enabled her with ease and nonchalance to lick her off-hind toe, were wont to attract our interested attention. We miss, also, the genial and companionable manner in which she was wont to join us in midnight depredations upon the family larder on returning home from a difficult and fatiguing case. We eventually consigned her to the care of a society of maiden ladies whose gracious mission in life was to safeguard the happiness and welfare of cats and preserve them from the designs of wicked boys and like cruel vicissitudes. We were sure that in such keeping she would be safe from harm. This course may seem to have been unfeline. But we were driven to it by reason of the many inconveniences which were the result of her persistently and hopelessly disreputable character.

PHTHISIOPHOBIA.

THIS aberration of the communal mind, which exists to a deplorable degree and is the cause of so much undignified conduct and such inhumane attitude toward the consumptive, has little room for existence. We know the methods of infection—principally from human sputum, not so often by ingestion, and very occasionally by inoculation; and that, unlike the contagious diseases, the contact must be frequent, repeated and long continued if consumption is to be communicated. Terrors of all sorts are invariably dissipated immediately knowledge and understanding are arrayed against them; and with the comprehension of these facts concerning this disease, one must lose his absurd fear and should with equanimity return to sane, reasonable Christian behavior.

It is really deplorable to consider the degree to which this phthisiophobia has driven people. Consumptives must perforce give up light work, such as many are sadly in need of. Employers will not engage such men; they are not going to run any risk of catching the dis-

ease, not they. Here a clerk suspected of phthisis is discharged; there a woman loses her place because it is whispered "there is consumption in her family." Even our powerful government at Washington—powerful enough to be merciful—sees to it that its phthisical employees shall be dismissed without pension. The work of the postman, so innocuous and so suitable for many cases of incipient phthisis, has cruelly been denied such sufferers. The Treasury authorities and the Commissioner of Immigration have decided tuberculosis to be a contagious disease, despite the protests of eminent physicians; and have ruled that entrance into these United States of such alien sufferers be prohibited. (We are glad to note, however, that this ruling is not strictly enforced, and that not many cases are turned back. Surely, for their own sakes advanced consumptives should not endure the hardship of emigration and, in most cases, poverty, in addition to the suffering caused by their disease).

A Pennsylvania town makes the asinine regulation that barbers shall not shave consumptives. The city of Redlands in California has passed an ordinance making it an offense punishable by fine or imprisonment for any one to erect a sanatorium within the city limits. Disregarding for a moment the inherent inhumanity of this procedure, one must note that while this ordinance continues on the statute books consumptives are scattered over the entire community, in hotels, boarding and lodging houses, private houses, tenements, hovels, propagating the disease and knowing not how or taking no care whatever to act against the spread of the infection.

Some time ago the health authorities of this city, seeking some means to alleviate the appalling suffering and loss of life among the citizens from consumption found a healthful spot appropriate for a sanatorium, in which a few among these forty thousand wretched sick might find some relief and at least rest; and it was at the same time sought to obviate the danger to the rest of the community from infection after the manner just set forth. It so happened, however, that the establishment of such a sanatorium upon this site would be displeasing to a single individual owning vast tracts in that region. Wherefore insidious influences were brought to bear, with the result that the unspeakable Goodsell-Bedell Bill was passed, by which it has become impossible to establish a sanatorium for consumptives anywhere within this State. The Health Department's efforts to this end have since been repeatedly frustrated. Only the other day an individual in whose cosmos there is an absurd preponderance of the ego brought successfully an injunction against the Department, which sought to establish a tuberculosis dispensary for the poor of Brooklyn. How incongruous this situation is may be emphasized by the fact that in Manhattan Borough there is a large reception hospital for cases of

scarlet fever—a disease much more infectious than consumption—situated on 16th street, adjacent to the most crowded region in the world. Yet no one either fears or has reason to fear its proximity.

Bulstrode cites that in an English town there is a sanatorium for the relatively poor, which has been inaugurated by the energy and philanthropy of a medical lady of eminence. The rector of the parish forbade his curate to visit at this institution because, as he declared, the disease is as dangerous as smallpox. When passing the sanatorium this precious smircher of his uniform crosses to the other side of the road. "It remains for the future to decide," observes Bulstrode, "whether the rector or the patients shall be furnished with the leper's rattle with which the arrival of one or another may be duly notified."

It is an uphill fight—this fight against phthisiophobia—for it is a fight against stupidity and prejudice and cowardice; all factors much more difficult to contend with than crime and rascality. "Against stupidity the gods themselves contend in vain," declared Schiller. He was himself a consumptive, this great poet; perhaps his observation was founded upon a personal struggle with such difficulties as these here presented.

TREATMENT OF PROSTATE TROUBLES.

THE prostate gland is unknown until age begins to creep upon the scene. It is characteristically the trouble that comes with advancing years and the management of it changes. As yet surgeons have spent much time and endeavor over the subject and from time to time a lightning flash illuminates the scene, only to die away leaving the scene enveloped in deeper darkness. Many suggestions have been made in prostatectomy that have from time to time been followed out. Guyon, Woolsey, White, Horwitz and Fenwick have all proposed various operations, instruments and ideas in the past fifteen years. Castration was proposed fifteen years ago by White, but the severest criticism of this treatment has come from the patients themselves. They object as a rule most strenuously to being castrated. Last June before the section on surgery of the American Medical Association, Young proposed a new technic which he termed "conservative perineal prostatectomy." In a recent issue of the *Journal of the American Medical Association* this paper is published. Young has operated in about two hundred cases of enlarged prostate and he believes that perineal prostatectomy is the safest method for relieving prostatic obstruction; that it is a comparatively benign operation; that spinal anesthesia is a valuable adjunct in feeble cases; that with appropriate retractors and traction the prostate can be exposed almost by blunt dissection, no important structures being divided, and the enucleation of the enlarged lobes can

be carried out under visual inspection in a shallow wound; that all forms of enlargement, even great intravesical middle lobes, can be drawn down and removed through the perineum, and generally without tearing the bladder, the urethra or the ejaculatory ducts; that the sexual *puissance* is thereby preserved in the majority of cases; that normal urination is established (may be after more than ten years of catheter life), and that incontinence is almost unknown; that the time has come for blind operations and the foolish fad of removing as much as possible of the prostatic urethra to end and for the surgery of the prostate to be done according to the dicta of modern surgery, under visual inspection and with due care of useful and non-obstructive tissues—the urethra and the ejaculatory ducts.

The especial points in Young's procedure are the use of tractors for exposing the parts for operation and the careful dissection of the offending hypertrophy. He preserves the ejaculatory ducts and the floor of the urethra without retaining any obstructive tissue. If a median lobe projects, it can be drawn by the tractor into one of the lateral cavities and there enucleated without disturbing the urethra or the ejaculatory ducts. Epididymitis is not common following this operation; complete continence of urine is generally present as soon as the perineal tubes are withdrawn and the sexual power is uninjured. Taken all in all, this paper of Young presents a distinct advance in the surgery of the perineum.

THE X-RAY IN HIP-JOINT DISEASE.

THE X-ray is rapidly reaching its proper status in medical work; the recent paper of Loret and Brown read before the American Orthopedic Association (*N. Y. Medical Journal*) deals decisively with its use in hip trouble. They formulated the following questions:

1. What proportion of cases diagnosticated as hip disease from the X-ray, presented a typical clinical history, and what proportion of such cases did not have such a clinical history?
2. What was the later history of cases diagnosticated as normal from the X-ray?
3. How late in the history of hip disease does a "normal" radiograph appear?
4. What are the characteristic appearances of the radiographic in hip disease?
5. What radiographic appearances go with shortening and deformity?
6. What similar conditions are found which the radiograph will differentiate from hip disease?
7. What are the sources of error in diagnosticating hip disease from the radiograph?

One hundred cases were examined by the X-ray and diagnosed exclusively by its use; subsequently this diagnosis was verified by the clinical history. Sixty-

one cases of hip disease were correctly diagnosed by the use of the X-ray. The earliest changes seen in the radiograph are a diminution in the density of the shadow and a diminution in its relative size. This shows atrophy which precedes bony thickening, erosion and loss of substance. Bony thickening is easily recognized by the X-ray, as is erosion. In only five cases were any errors made in diagnosis out of the hundred consecutive examinations. In two of these hip disease was diagnosed when it was not present. Here the writers were misled by extra articular collections of pus. In only three cases out of three hundred was the diagnosis wholly wrong. Surely the X-ray in the hands of capable investigators is a valuable adjunct to clinical diagnosis in hip trouble.

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Maternitas: A Book Concerning the Care of the Prospective Mother and Her Child.—By Charles E. Paddock, M.D., Professor of Obstetrics, Chicago Post-Graduate Medical School; Assistant Clinical Professor of Obstetrics, Rush Medical College. Chicago: Cloyd J. Head & Co., 1905. 12mo, pp. 189. Price, \$1.25.

This book can be unqualifiedly commended for the purpose intended.

Manual and Clinical Repertory of a Complete List of Tissue Remedies. (Biochemistry and Cellular Therapy.)—By Dr. Med. Eric Graf von der Goltz. 224 pp., 12mo, cloth, \$1.25. Postage, 6 cents. Philadelphia: Boericke & Tafel, 1905.

This manual is intended as a guide in the practice of medicine with what are called tissue remedies. Practitioners who use the system, will be interested in this book.

A new edition of *Gray's Anatomy* is announced by Messrs. Lea Bros. & Co., to be published about midsummer, and embodying nearly two years of labor on the part of the editor, J. Chalmers DaCosta, M.D., of Philadelphia, and a corps of special assistants.

The editor and publishers have spared neither labor nor expense to keep "Gray" at the forefront of anatomical knowledge, and there seems to be no reason to doubt that its next fifty years will pass as smoothly and as successfully as have those of the past.

Thoughts for the Rich.—By Austin Bierbower. New York: Fowler & Wells Co. Price, 25 cts.

The first chapter of this little brochure is addressed to those about to become rich, and it gives some good advice in respect to the use of money.

The Historical Relations of Medicine and Surgery to the End of the Sixteenth Century.—An address delivered at the St. Louis Congress in 1904.—By T. Clifford Allbut, M.A., M.D., Regius Professor of Physic in the University of Cambridge, Fellow of the New York Academy of Medicine. London and New York: The Macmillan Company, 1905. 12mo, pp. 125. Price \$1.00.

An interesting and most scholarly address, full to the brim with historical information.

Psychology and Pathology of Handwriting.—By Magdalene Kintzel-Thumm. New York: Fowler & Wells Co., 1905. 12mo, pp. 149. Price, \$2.00.

The author in order to give her graphological observations a psychological base, and not finding one in existence to suit, has constructed one for herself. The book is divided into three parts, the last one being devoted to the handwriting in disease, and its value in differential diagnosis. The text is fully illustrated.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition.—By Dr. Carl von Noorden, Physician-in-chief to the City Hospital, Frankfurt, A.M. Authorized American Edition translated under the direction of Boardman Reed, M.D., Professor of Diseases of the Gastro-Intestinal Tract, Hygiene and Climatology, Temple College; Physician to the Samaritan Hospital, Philadelphia, etc. Part VI. Drink restriction (thirst-cures), particularly in Obesity.—By Prof. Carl von Noorden and Dr. Hugo Salomon. New York: E. B. Treat and Company, 1905. 12mo, pp. 86. Price, 75 cts.

It is always a pleasure to welcome anything from the pen of Prof. von Noorden, who is one of our greatest authorities upon disorders of metabolism and nutrition.

In the discussion of this important subject, the author says very pertinently that "one should never forget that the restriction of liquids is no indifferent procedure," and that the physician should "realize the great responsibility he is assuming, and carefully weigh all the circumstances in each individual case. Applied correctly and within wise limits, the method of restriction, however, is as important as, under certain other conditions, the opposite method of flooding the organism with large quantities of liquid."

Lea's Series of Medical Epitomes.—Edited by Victor C. Pedersen, M.D.

Arneill's Epitome of Clinical Diagnosis and Urinalysis.—A Manual for Students and Practitioners.—By James R. Arneill, A.B., M.D., Professor of Medicine and Clinical Medicine in the University of Colorado, Physician to the County Hospital and to St. Joseph's Hospital, Denver. In one 12mo volume of 244 pages, with 79 engravings and a colored plate. Cloth, \$1.00, net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1905.

This series will comprise twenty-two volumes, of which this is the seventeenth. The volumes are uniformly excellent, modern and trustworthy, and well adapted to the needs of students and to preparation for College and State Board Examinations.

The present volume contains up-to-date information on the subjects of which it treats. Illustrations have been freely used.

A Treatise on Hygiene and Sanitation. For Students, Practitioners, Health Officers, etc.—By Charles Harrington, M.D., Assistant Professor of Hygiene in Harvard University Medical School, Boston. New (3d) edition, thoroughly revised, octavo, 793 pp., with 118 engravings and 12 plates. Cloth, \$4.25, r.e.t. Lea Brothers & Co., Philadelphia and New York, 1905.

This work, which has been found worthy in one of the most important branches of medicine, has been thoroughly revised and a new section added on Infection, Susceptibility and Immunity. The book covers the whole subject, clearly and comprehensively, and may be considered authoritative. The fact that two large editions have been exhausted in less than four years, indicates the favor with which it has been received by the profession. It is well adapted to the needs of the

student, the practitioner and the health officer.

Practical Dietetics with Special Reference to Diet in Disease.—By W. Gilman Thompson, M.D., Professor of Medicine in the Cornell University, Medical College in New York City, Visiting Physician to the Presbyterian and Bellevue Hospitals. Third edition, enlarged and thoroughly revised. New York and London: D. Appleton and Company, 1905. Octavo, 846 pp.

The present edition of this practical work has not only been revised throughout, but much new matter has been added, particularly in regard to digestibility of food stuffs; the subject of obesity; the diet in acute rhinitis; the diet for diabetics; the diet in scurvy and in young children, and an elaborate article on fats and oils. There are also a number of new tables, which are of practical application.

The book is founded upon the basis that the sick cannot be fed according to "hard and fast" rules, but the problems of right feeding in disease must be studied in the light of clinical experience, and modified to meet ever changing conditions.

The subject of dietetic treatment of disease is fast assuming the position which its importance demands, and every practitioner in order to do good work requires a book of this kind, and there is none better than the one under review.

A Treatise on Acute Contagious Diseases.—By William M. Welch, M.D., Consulting Physician to the Municipal Hospital for Contagious and Infectious Diseases; Diagnostician to the Bureau of Health, etc., Philadelphia, and Jay F. Schamberg, A.B., M.D., Professor of Dermatology and of Infectious Eruptive Diseases, Philadelphia Polyclinic; Consulting Physician to the Municipal Hospital for Contagious and Infectious Diseases, and Assistant Diagnostician to the Philadelphia Bureau of Health, etc. 781 pp., illustrated with 109 engravings and 61 full-page plates. Cloth, \$5.00, net; leather, \$6.00, net; half morocco, \$6.50, net. Lea Brothers & Co., Philadelphia and New York, 1905.

The experienced authors present a most practical treatise upon an important subject of the greatest interest to the student and the general practitioner. The text is based upon the study of a vast number of cases, and this, with the photographs of typical cases, in the successive stages of the various diseases, makes diagnosis comparatively easy. The subject of smallpox is most graphically portrayed and illustrated, in the interest of diagnosis. Scarlet fever, diphtheria, and the other acute contagious diseases, are all studied from a similar view point, the supreme object being to make the book of every day use. The subject of treatment is fully covered in minute detail. Our readers can make no mistake in ordering this book, as it will be found to meet their wants in respect to diagnosis and treatment of many common diseases, as well as some that occur more rarely.

A Treatise on Plague, dealing with the Historical, Epidemiological, Clinical, Therapeutic and Preventive Aspects of the Disease.—By W. J. Simpson, M.D., Aberd., F. R. C. P., Lond., D.P.H. Cambridge Professor of Hygiene, King's College, London; Lecturer on Tropical Hygiene, London School of Tropical Medicine; formerly Health Officer, Calcutta; Medical Adviser to the Government of Cape Colony, during the outbreak of plague in 1901; Commissioner for

the Colonial Office to inquire into the causes of the continuance of plague in Hong Kong. Cambridge: at the University Press, 1905. New York: The Macmillan Company, large octavo, pp. 466, price \$5.

This volume presents in moderate compass the principal facts concerning plague, from its various aspects. The text is written in most readable style, and will not fail to interest any one who attempts it. The subject is treated elaborately enough for general purposes, as it gives the main points of the disease and treatment, in concise, plain language.

The book is worthy a wide reading in this country, where we know very little about the subject of which it treats.

Enlargement of the Prostate, its history, anatomy, ætiology, pathology, clinical causes, symptoms, diagnosis, prognosis, treatment, technique of operations, and after-treatment. By John B. Deaver, M.D., Surgeon-in-chief to the German Hospital, Philadelphia, assisted by Astley Paston Cooper Ashhurst, M.D., Surgeon to the Out-patient Department of the Episcopal Hospital; Assistant Surgeon to the Orthopædic Hospital, and to the Dispensary of the German Hospital. Illustrated with 108 full-page plates and a colored frontispiece. Philadelphia: P. Blakiston's Son & Co., 1905. Large octavo, pp. 266.

The author has added another to his list of superb works upon important surgical subjects.

This volume has been prepared with a view to its being representative of the subject of which it treats, and while it includes the experience of other observers in this field of research, the author has been able, from his vast experience, to make his work much more than a compilation; it is largely original. The illustrations are excellent, are mostly original, and cover every important phase of the subject in all its aspects. The treatment, other than operative—and this forms by far the largest part of actual practice—has received the attention its importance demands. The work will be found of practical value to surgeons and to general practitioners who have prostatics under observation. The physical part is in the publishers' highest art.

Outlines of Inorganic Chemistry.—By Frank Austin Gooch, Professor of Chemistry in Yale University, and Claude Frederic Walker, Teacher of Chemistry in the High School of Commerce of New York City. New York: The Macmillan Company, 1905. Octavo, pp. 514.

This excellent book, written by experienced teachers, presents a new plan of study of an important and difficult subject, the aim being to consider the simplest and fewest things. The experimental phenomena are placed in such relation that the inferences may not be missed—a most important object. Much care has been taken with the introductions to group characteristics, and with the summaries, covering relations in detail. The work will be found best adapted to the higher school and the literary college, preparing the way for the more elaborate treatises required in advanced scientific study. The book can be safely commended to students.

Meals Medicinal: with "Herbal Simples," (or Edible Parts) Curative Foods from the Cook; in Place of Drugs from the Chemist.—By W. T. Ferine, M.D., Author of "Herbal Simples," "Annual Simples," "Kitchen Physic," etc., etc. Bristol: John Wright & Co., 1905. Pp. 781, octavo; price, 7/6, net.

The leading motive of this work is to instruct the reader, how to choose meats and drinks, which can afford precisely the same remedial elements for effecting cures, as medicinal drugs, in other words it is a culinary "materia medica." The text is pregnant with fact and sufficient fiction, is wittingly interwoven, to keep the reader amused and still remain interested, if not fascinated. The book is not intended exclusively for physicians, but we must say its perusal will be of great profit to any reader.

Ailments of Women and Girls.—By Florence Stackpole, Certificated London Obstetrical Society, Author of "Advice to Women on the Care of Their Health Before, During and After Confinement." Bristol: John Wright & Co., 1904. 12mo; pp. 238. Price, 2/, net.

The text is written in simple language, for the purpose of acquainting women with the chief physiological functions of their bodies, with some simple methods of treatment of slight affections, unworthy the attention of a physician. It is a suitable book to advise for the purpose intended.

The Art of the Musician. A Guide to the Intelligent Appreciation of Music.—By Henry G. Hanchett. New York: The Macmillan Co., 1905. 327 octavo pp. Price, \$1.50.

This book is intended to stimulate investigation of the intricacies of music, to emphasize the distinction between the real study of music and the study of the arts of playing and singing, and to supply the demand of those mature lovers of music, who wish to understand the aims and purposes of a composer, in order that the listening to music may be more intelligent and, hence, enjoyable. Dr. Hanchett has produced a book that will interest any person who understands musical notation.

A Hand-Book of Nursing.—Revised Edition for Hospital and General Use. Published under the direction of the Connecticut Training-School for Nurses, connected with the General Hospital Society, New Haven. Philadelphia and London: J. B. Lippincott Co., 1905. 12mo, 319 pp.

The present revised edition of this little book, provides instruction for nurses in private families, in addition to the hospital course. It will assist the nurse in the intelligent performance of her daily duties.

The Eye, Mind, Energy, and Matter.—By Chalmers Prentice, M.D., Chicago, Ill. Published by the author, 1905. Pp. 131, 12mo.

The first part of this book is intended for the general reader. Drukenness is considered a nervous disease, and its cure is claimed by the use of what are termed "repression" glasses, the purpose of which is to set the nerve centres at rest. The book is really intended for the layman.

An Introduction to Chemical Analysis for Students of Medicine, Pharmacy and Dentistry.—By Selbert W. Rockwood, M.D., Ph.D., Professor of Chemistry and Toxicology, University of Iowa, Author of "A Laboratory Manual of Physiological Chemistry." Second revised edition; illustrated. Philadelphia: P. Blakiston's Son & Co., 1904.

This is a most useful little book for the purpose intended, as it paves the way to the more elaborate works, which are beyond the beginner, and cannot be understood. It is like attempting to read, without knowing the A, B, C's. The book is designed to furnish a scientific basis for more technical courses and to give

the familiarity with chemicals and manipulative methods, which is so necessary in some lines of medical work. A series of questions will be found at suitable places, which facilitate the study for both student and teacher. The book is commended.

Bulletin of the Ayer Clinical Laboratory of the Pennsylvania Hospital, January, 1905.

This bulletin contains A Study of the Bone-marrow in Typhoid-Fever and other Acute Infection, Studies on the Basophilic Granulations of the Erythrocyte in lead-poisoning and other conditions, with special reference to the relation which they bear to the Nuclei of the red blood corpuscle; The Relation between Congenital Malformations of the Heart and Acute Endocarditis with Report of Two Cases, and The Report of a Case of Malignant Tumor of the Testicle Resembling Chorio-epithelioma with Metastasis.

Fifth Annual Report of the Work of the Cancer Laboratory of the New York State Department of Health, Conducted at the Gratwick Research Laboratory, University of Buffalo.

An interesting and instructive collection of essays, of service to any student of this important subject.

The Practical Medicine Series of Year Books, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of Gustavus P. Head, M.D. Volume I, General Medicine, Edited by Frank Billings, M.S., M.D., Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, M.D., Professor of Medicine, Chicago Clinical School. Series 1905. Price, \$1.00. Volume II, General Surgery, Edited by John B. Murphy, M.D., Professor of Surgery, North Western University Medical School. Price, \$1.50.

The volume on general medicine contains valuable contributions on a great variety of subjects of a practical character in the form of a review of the literature in the most condensed way possible.

The volume devoted to general surgery contains 545 pages, and is much larger than the one devoted to medicine. This volume shows a vast amount of work by the editor, and he has again reproduced extensively articles based upon large experience of single individuals, rather than upon the lesser experience of the greater number.

These books have become justly popular with the profession. The series of 10 volumes costs only \$5.50.

The Registration of tuberculosis is coming more and more to meet the favor and to enlist the co-operation of physicians, as should be the case. No great advance in the prevention and cure of this disease can be hoped for, unless cases are notified to the health authorities and registered. A continued agitation in favor of this measure is likely to bear early fruit in Ontario. The Maryland Legislature has passed a law regarding tuberculosis which requires notification within seven days upon special blanks provided by the Board of Health. This information is confidential. In many other communities the necessity for these steps is becoming apparent.

The lunch-counter towel should certainly be abolished, as an exchange urges. It is among the more mischievous of the avoidable means of conveying contagion. Was it not a tale of Mark Twain's—that of an irate hotel clerk who told a squeamish and objecting guest that he was the "fiftieth man who had used that towel and the first man to kick"?

CORRESPONDENCE

"HARVARD CANCER COMMISSION."

To the Editor MEDICAL TIMES:

I was attracted by the following report of the "Harvard Cancer Commission" which appeared in the February number of the *Dominion Medical Monthly*.

"The Harvard Cancer Commission, it is understood, will report shortly that cancer is neither hereditary nor contagious, and that it is not of parasitic origin. The report will also state that excision is the only cure except in the case of small superficial growths, which may be cured by radiotherapy."

I have closely studied the subject of cancer for the past twelve years and for twelve years before that I had successfully treated many cases.

About ten years ago I advanced the idea that cancer is infectious and gave verifying data. I believe that cancer is not only infectious but also hereditary, and I know that most, if not all cancers can be cured with or without the knife.

I will be interested to see the report of the Commission and to learn how they have arrived at the above conclusion. If they say cancer cannot be cured, they issue a challenge which will doubtless be taken up by many physicians who are successfully treating these cases by various methods.

When the internal organs have become seriously involved and general sepsis prevails, the accredited method of treatment offers little, but when the disease is confined to external parts of the body it can usually be successfully removed.

I consider that these local manifestations are secondary and not primary effects of the disease, as is usually held. Preventive measures are as effective in these cases as they are known to be in many other diseases.

It is evident to every one that as long as the blood remains healthy, no disease can exist. Our only hope in successfully treating cancer is to restore or re-establish a normal condition of the blood.

It is now an established fact that there are many ways of so thoroughly oxidizing the blood that the disease-engendering matter within it is rendered innocuous and eliminated.

Allowing that the local manifestations of cancer are always secondary, does it not look reasonable that better results will be secured by coupling local treatment with such measures as will purge the system of the pernicious and infectious primary conditions?

Now that we know that Bright's Disease and Diabetes are both secondary affections and can be cured, why should we not expect as much for cancer?

It seems to me that most cancer patients die from the want of some specific treatment, and for this reason, cases are allowed to run on until they become hopeless.

One of the Harvard Commissioners recently told a personal friend that the Commission knew no more now on the subject of cancer than when it began its investigations. It would seem from this that the lines upon which the Commission has been working are as conservative as Boston herself.

7 W. 58th St., N. Y. G. LENOX CURTIS, M.D.

Dr. F. Llewellyn Barker, formerly Professor of Anatomy, at Rush Medical College, in Chicago, has succeeded Dr. Osler, in the Chair of Medicine at Johns Hopkins University.

THE CLINIQUE

STUDY OF A CASE OF TUBERCULAR PERITONITIS.

Treves has pointed out that in the large proportion of cases of fatal peritonitis the leading symptoms are those of poisoning and not of inflammation; also that the cases in which suppuration is most pronounced are among the most favorable forms of peritonitis, while the most acute and unfavorable cases are those which show the least inflammatory changes. Localized peritonitis occurs in those regions which are unoccupied by the coils of the lesser bowel; while the front, which is apparently most sensitive to infection and which is most prone to rapidly spreading and diffuse inflammation, is that which covers the small intestine. Treves has noted the comparative invulnerability of the peritoneum in those who are the subjects of chronic peritonitis, or of repeated sub-acute attacks due, in his opinion, to an acquired immunity to septic trouble.

The following classification of peritonitis, according to its cause, appeared to be justified by our present knowledge of the subject: (1) Peritonitis due to infection from the intestine (*bacterium coli commune*). (2) Peritonitis due to infection from without (pyogenic cocci, especially *streptococcus pyogenes*). (3) Peritonitis due to the pneumococcus. (4) Tubercular peritonitis. (5) Peritonitis of doubtful nature: (a) peritonitis due to irritants; (b) forms reputed to depend upon rheumatism, gonorrhea, syphilis, Bright's disease, and alcoholism; (c) peritonitis in the new-born. The *bacterium coli commune* can produce pus after inoculation, and these various forms of peritonitis which are assumed to be of intestinal origin, depend mainly, and in many instances entirely upon the *bacterium coli commune*; pathologists have not yet proved the production of peritonitis by non-infective irritants, but injury done by such irritants seems to favor the action of pathognomonic bacteria. The possibility of rheumatic peritonitis is doubtful, and that associated with gonorrhea is probably not due to the gonococcus which will not live in the peritoneum, but rather to pyogenic infection of the genital discharges and extension to the peritoneum. The peritonitis alleged to be due directly to Bright's disease, alcoholism and syphilis, would seem rather to occur under conditions favorable to bacterial growth, or to be due to extension from parts already inflamed. Peritonitis in the newly-born is due either to extension from an inflamed cord or to rupture of the bowel from any cause. Meteorism depends almost entirely upon gross disturbances in the circulation of blood through the affected portions of intestine. Vomiting is the most constant symptom of peritonitis, while it is usually absent in cases of gastric perforation.

Treves says, in discussing the use of aperients in peritonitis: "In the peritonitis following hernia, or associated with acute intestinal obstruction, the complete evacuation of the bowel is desirable for reasons which are apart from the peritonitis. In septic peritonitis—in the usual acceptance of the term—aperients are useless, and the same may be said of their employment in true perforative peritonitis. In a large proportion of examples of perityphlitis, and in the pseudo-ileus which may follow after operation, the prompt evacuation of the bowels is often attended with the very best results."

The chief cause of abdominal dropsy can be divided into two classes: (1) Obstruction to the flow of blood

through the portal system; (2) Irritation and inflammation of the peritoneum. Since nearly all the blood of the portal circulation passes through the liver, the greatest obstruction to this circulation is caused by disease, in, or in the neighborhood of this organ; cirrhosis, syphilis and carcinoma being the affections of the liver which most frequently give rise to ascites, any growth which, by its pressure, occludes, in whole or in part, the portal vein may be followed by the same result; cirrhosis of the liver being undoubtedly the commonest cause of ascites. This new-formed connective tissue is similar to that which forms the scar and, like all cicatricial tissue, is no sooner formed than it begins to contract. This contraction, of course, compresses the ramifications of the portal vein, and causes more or less obstruction to the flow of blood. Venous stasis of the portal radicles results and may be so great as to cause rupture of the vessels of the stomach or intestines, manifesting itself by hematemesis and melena, or by enterorrhagia. Hematemesis or intestinal hemorrhage occurring in an intemperate man or woman should excite suspicion of hepatic cirrhosis, but generally ascites is the first symptom which points to organic disease of the liver. All manner of gastrointestinal disturbances may have preceded the dropsy and they are not, as is supposed, merely functional in their nature. Congenital syphilis probably accounts for many of the cases of hepatic cirrhosis in children. In cases of acquired syphilis of the liver there will be other external signs of the systemic condition, such as the cicatrix of the primary lesion, as well as the scars of secondary lesions, a history of cutaneous eruptions, sore throat and the falling out of hair.

Wilson, in perforation-peritonitis, has drawn attention to the important position which surgical treatment has attained in this disease; he claimed that physicians are less advanced in treating this condition than are surgeons, and are less ready in diagnosis and in turning the case over to the surgeon. He believes that observation of the pulse and temperature is an unreliable method of diagnosis, regarding the most important symptom to be rigidity of the abdominal walls. He insists that operation must be undertaken within twenty-four hours after perforation, or the case might become hopeless. Keen agrees that the pulse and temperature are uncertain signs of abdominal sepsis, and that rigidity is a sign of great value. He also insisted upon early operation, and advised two incisions with through-and-through flushing and wiping the intestine as clean as possible, in order to obtain thorough cleansing of the abdominal cavity. In typhoid fever he considers the appearance of distinct abdominal pain a grave symptom, and one that should always make one fearful of possible perforation.

Stockton has drawn attention to the fact that in perforation of hollow viscera, such as the bladder or the stomach, the course is usually very acute and violent; while rupture of the solid organs or of abscesses forming in these organs is usually preceded by less violent and less distinctive symptoms, so that abruptness of onset indicates perforation of a hollow viscus. The localizing diagnosis, however, is often difficult, as was seen in a case of his own, in which the local symptoms all pointed to perforation of the bladder, while the autopsy showed that the perforation was of the stomach. Abdominal rigidity may be absent, and yet, especially in cases of disease of the pelvis, rectal examination will

show rigidity of the pelvic muscles.

Hepatic carcinoma is almost invariably secondary to carcinoma in some other organ, such as the stomach, pancreas, cecum and rectum; so when it has involved the liver to such an extent as to give rise to ascites the patient is in a very cachectic condition; whereas, our patient presents none of the signs of advanced cachexia. Moreover, cancerous deposit in the liver always increases the size of the organ, sometimes to an enormous extent; such a liver can almost always be felt projecting below the costal border, whereas, in our patient, no enlargement of the liver can be detected, so his disease is probably not situated in the liver. Let us now search for it outside of the liver, and starting at its portal, we first have to consider thrombosis of the portal vein, pylethrombosis, as it is called. There can be no doubt that the most complete obstruction to the portal circulation is caused by thrombosis of the portal vein. This, however, never occurs as a primary affection, but is the result of pressure by new growths or enlarged glands in or near the hilus of the liver. It may also be the result of cirrhosis, occurring in the last stages of that disease. Pylethrombosis may be positively excluded, since there is evidence of abdominal tumor, and enlarged glands on the under surface of the liver voluminous enough to compress the vena porta would almost inevitably obstruct the outflow of bile and gives rise to jaundice. Affection of the peritoneum may have caused the effusion; peritonitis, like pleurisy, is attended with more or less effusion, either serous or purulent, and it may be laid down as a rule applicable to both of these diseases that the amount of effusion is in inverse ratio to the acuteness of the inflammation. Opinions are divided as to the existence of such a disease as acute idiopathic peritonitis, and certainly the great majority of cases of peritonitis are secondary to inflammation of cecum, appendix veriformis, and genital organs; still, in my opinion, idiopathic cases are occasionally seen, especially in rheumatic individuals and in those suffering from Bright's disease. The onset in tubercular peritonitis is insidious. Chronic peritonitis is always secondary to visceral disease, being very apt to have its seat in the peritoneum covering the liver, and is known as perihepatitis. The peritoneum is often greatly thickened in this situation by inflammatory deposit and the tendency to contraction on the part of the effused lymph is sometimes so great as to cause the anterior border of the liver to curl backward upon the superior surface of the organ. That this alteration in the shape of the liver is caused by the contraction of the thickened capsule is proved by the fact that when the capsule is removed the liver returns to its normal shape. The compressed exercised upon the liver by perihepatitis is quite sufficient to give rise to ascites; perihepatitis is generally associated with kidney disease, whereas, in cirrhosis of the liver, the urine is generally normal. Before deciding it to be such it is necessary to consider the remaining affections of the peritoneum which give rise to ascites. These are cancerous peritoneum and tubercular peritonitis. The objections to regarding the case as one of cancerous peritonitis are identical with those raised in discussing the question of cancer of the liver: (1) It is generally secondary to cancer of one of the abdominal organs, those most frequently the seat of the primary disease being the stomach and ovaries; (2) It is exceedingly rare under thirty years of age; and, (3) It is decidedly more common in women. Tu-

bercular peritonitis is insidious in its onset, abdominal pain being generally the first symptom complained of. There is usually tenderness on pressure, but this depends upon the seat of the inflammation. A favorite site is the under surface of the diaphragm, and, in such cases, tenderness on pressure may not be elicited. The most marked peculiarity of tubercular inflammation of the peritoneum is its tendency to transverse the diaphragm and attack the pleura. A concomitant pleurisy bears the strongest evidence in favor of the tubercular nature of a peritonitis, and vice versa. As a matter of course we now examine the chest, and we find marked dullness over the lower two-thirds of the left lung behind. In the same region the breath-sounds are extinguished, the voice distant and bronchial, and, at the upper limit of dullness there is well-marked egophony. The signs of pleuritic effusion are unmistakable, and if further proof be needed it is found in the fact that the pulsations of the heart may be plainly felt and seen to the right of the sternum. A cough may be regarded as due to simple bronchitis until an examination of the sputum revealed the presence of tubercle-bacilli.

The prognosis of tubercular peritonitis is by no means so grave as that of tuberculosis elsewhere, for many cases of tubercular peritonitis have recovered. The criticism may of course be raised that the diagnosis of these reported cases may have been faulty. This may be true with reference to some of the published cases, but such skepticism may be carried too far.

We cannot attribute the recoveries that have taken place to any specific plan of treatment; Fagge advocates the application of mercurial ointment to the abdominal surface, believing that this has been productive of good results, especially in children, while others report success from the local application of tincture of iodine. The abdomen must be tapped if the accumulation of fluid in the peritoneum becomes so great as to give rise to pressure symptoms, and the same remark applies to the thoracic cavity. Thus far there have been no indications for tapping either of these cavities. In fact, the effusion in the abdominal cavity has diminished somewhat since the patient's admission. General supporting measures are indicated and an occasional laxative to supplement by the bowels the deficient action of the kidneys which as revealed by the examination of the urine, are the seat of chronic inflammation.

Treves, in tubercular peritonitis, gives the percentage of cures as 69.8, and of complete recoveries as 33.4 in cases treated by laparotomy. With regard to drainage he says: "Drainage is not necessary, and indeed drainage of the whole cavity is impossible. The gauze drain is better than the rubber tube. Fistulae have been somewhat common after the use of the tube." Park says that among the signs of tubercular peritonitis are reddening and thickening around the umbilicus which are due to extension of inflammation along the obliterated umbilical vessels, while Duran recommends the insufflation of sterilized air in these cases, reporting two successful cases. The air had previously been passed through caustic potash moistened with phenic acid. In both examples reported there was considerable reaction, as evidenced by fever, nausea, and tympanites, the latter lasting about eight days. Nolin also records three cases of tuberculosis ascites treated by insufflation of sterilized air. Two were apparently completely cured, the other died two months after from tubercular ulceration of the intestine; the ascites had

however disappeared. Guignabert describes a method of treatment of tuberculous ascites which consists in partially emptying the peritoneal cavity of ascitic fluid, and then injecting through the cannula which is left in situ fine hypodermic syringefuls of camphorated naphthol, subsequently closing the puncture with an aseptic dressing. The immediate result is a more robust inflammation followed by a complete cure.

RETROSPECTIVE THERAPEUTICS

Mitral Stenosis is easily diagnosed in the first stage, states F. P. Henry (*Am. Med.*, May 20, 1905). There is then a presystolic murmur easily recognized by the fact that it is followed by the first and second sound both audible at the apex. The second stage is indicated by disappearance of the second sound at the apex, this being due to dilatation and hypertrophy of the right ventricle and feeble propulsion of blood into the aorta. The presystolic murmur (low-pitched and rumbling) continues. Many hold that the onset of the third stage is marked by disappearance of the presystolic murmur and the establishment of signs of tricuspid regurgitation; but Henry has found the presystolic murmur only exceptionally to disappear with the onset of these signs. He emphasizes another phase of mitral stenosis—an extreme arrhythmia, a "veritable delirium cordis," which may persist without intermission for months or years. In such cases there is no murmur; and it is impossible to distinguish the sounds from each other; the arrhythmia may be the only expression of the lesion. The picture of these cases is as follows: Marked anemia, with somewhat dusky skin and cyanotic lips, a tendency to bronchial catarrh, marked periods of improvement, with little or no diminution of the arrhythmia, and no edema, except when in extremis.

Disturbances sustained by telephone operators after electric shocks are described by Wallbaum (*Deut. Medic. Wochenschr.*, May 4, 1905). According to the powers of resistance and the nature of the accident there will be fainting, clonic convulsions; attacks of weeping, swelling of the extremities, especially on the injured side, and disorders of sensation. Following upon these first symptoms severe headaches and dizziness appear, as well as erratic neuralgic disturbances which are most prominent during cold or stormy weather. There may be also cramp-like abdominal pain, hemiplegia, vasomotor paresis and other evidences of nervous exhaustion, such as the loss of power of mental concentration. Cardiac weakness is present in all cases—irregularity of the pulse, precordial pain, palpitation, etc. The prognosis is bad with regard to the resumption of telephonic work; otherwise great improvement may be obtained. The treatment consists of suggestion, static electricity, massage and baths. Faradism and bromides are to be avoided. Applicants for these positions should be examined with great care—such as have in their family history mental disorders or nervous diseases should not be engaged; and those whose parents have died of a severe chronic malady should be tested with especial care as regards the nervous and vascular systems.

From Seattle to St. Paul fresh milk can be shipped, we are assured by the *Post-Intelligencer* of the former city. This experiment has been tried with success, it is claimed, by W. H. Paulhamus, a well-known dairyman of the "Sound" region. This gentleman claims that milk can be drawn through the sterile tube

into the sterilized bottles, and if from an absolutely healthy can, "will keep forever." He shipped a case of bottled milk to St. Paul. There was a dynamo in the car, which kept the temperature higher than it would normally have been and made the trial all the harder, yet it arrived in good condition. The secret of obtaining pure milk and having it remain so, it is claimed, is to keep it absolutely dirt free at all times and to cool it down as quickly as possible after being drawn from the cow.

Ergot and arsenic in chorea are advised by Rivierre (*Brit. Med. Jour.*, Feb. 18, 1905). The fluid extract of Ergot 3i-iss, combined with two minims of liquor strychninae was given thrice daily with the result that about one-half of the cases were rapidly improved or cured. Most of those who did not respond to this treatment improved when arsenic was substituted. An effort was made—unsuccessfully, however—to separate by clinical features the type of cases responding respectively to ergot and arsenic. Recognizing that a division of choreics must be arbitrary, Rivierre divides his cases into rheumatic and non-rheumatic; into those with much and those with little voluntary control; into those with pronounced and those with slight movement; into first and later attacks. To none of these divisions was it found that ergot-cured patients necessarily belonged; examples were found in all classes. In some cases ergot was at first ineffective; arsenic on being administered, aggravated the condition, but immediate improvement or cure followed upon resuming the ergot. It then seemed best to combine the drugs; beginning with ext. ergot 3i with three minims of liq. arsenicalis, the doses were guardedly increased. This mixed treatment gave good results in at least three kinds of cases; those that were benefited by ergot, those that are susceptible to arsenic, those—a few—where one drug seemed to supplement the other.

Buttermilk has been used for infant feeding in Holland from time immemorial, and its use has been greatly extended since Teixeira's researches reported in 1902. Massanek (*Jahrbuch für Kinderheilkunde*, Nov., 1904) studied this food during ten months on seventy-nine babies. The casein in buttermilk is suspended in a very fine state of coagulation. The amount of fat varies from one-fifth to one per cent. This buttermilk was obtained four hours after churning, and to each liter fifteen grains of rice flour and 60 to 90 grains of ordinary beet sugar were added. This is brought to a boil four times and then sterilized in a Soxhlet apparatus for ten minutes. The preparation was taken eagerly by all the infants. Fewer cases of diarrhea occurred than before this diet, nor were any bad effects attributable to it observed. In the maternity hospital cases it was given alternately with the breast and was well-borne. No cases of sickness occurred among these buttermilk-fed infants. In this sterilized buttermilk the lactic acid bacteria are destroyed, but their product, lactic acid, remains. This acid has a disinfectant action and aids peptonization. While the reaction of the milk is strongly acid, the stools are always strong alkaline. Massanek concludes also that buttermilk can be fed to sick infants for long periods. It has the advantage of great cheapness.

Abscess of the liver in typhoid fever is a rare lesion, states S. Hugne (*Brit. Med. Jour.*, March 4, 1905). It is more likely to occur in cases of colon typhoid, and

in patients who have already suffered from some lesion of the liver, malarial or otherwise. Such abscesses may be single or multiple. The former may occur in either lobe and may resemble the large abscess of dysenteric origin; the contents are brown or yellowish-green pus, not always fetid. Multiple abscesses present the metastatic characters, such as occur in any infectious disease. They are in size from a lentil seed to a filbert. They may coalesce, the resulting cavity being distinguishable from that of the single abscess by its irregular walls. The pus here is fetid and pyelophlebitis is usually present. The symptoms of metastatic abscess are indefinite; and, in the course of typhoid, naturally obscure. However, in the fourth or fifth week, there will develop pyemic symptoms, with enlargement and tenderness of the liver. There may be jaundice, which is more frequent than with solitary abscess. There is adynamia and death from septicemia. If an early diagnosis is made, surgical intervention may save the case. In favorable cases the prodromal symptoms are less marked—slight vigor with rise of temperature and often severe pain in the peritoneum. A fatal termination must be expected in cases not operated upon. If operation be not advisable—typhoid patients bear major operations badly—recourse may be had to puncture, which may be repeated.

Toxaemia of intestinal origin is ably discussed by H. A. Houghton (*Med. Jour.*, May 27, 1905), who recognized that successful inoculation of living tissue with pyogenic organisms require the presence of at least two factors: A "vital decrease" to such an extent that normal resistance to the infecting agent is impaired, and the actual presence of bacteria in sufficient numbers and of sufficient virulence to overcome the resistance offered. Houghton concludes that in many cases of vital decrease, manifested objectively by minor septic infections, toxaemia of intestinal origin may be regarded as a predisposing cause. This conclusion is very far-reaching. It would explain, for instance, why the surgeon finds that of two patients undergoing the same operation and fixity of technique, one will promptly recover and the other perhaps either take longer to recuperate or die of sepsis. In the domain of infectious medical diseases, why does one person contract typhoid fever when another does not? The practical application of this conclusion means attention to the proteid fermentation taking place in the bowel, particularly in those cases in which the urine presents a large amount of indican. It is not sufficient simply to produce evacuation of the bowels. The indicanuria must be treated by diet and other procedures looking toward its complete cessation. This will completely cure many cases of recurring minor infections.

The diagnosis of mild degrees of jaundice was studied by L. Syllaba (*Folia Haematologica*, 1904), who found in cases of pernicious anemia and chlorosis that bilirubin could be demonstrated in the blood when it could not be found in the urine, and concluded, as did Hamer, that the examination of the blood serum for biliary coloring matter is the most delicate and most satisfactory test for the presence of icterus. The latter's method is to use a small capillary tube (as in the Widal test), collecting 15 to 20 drops of blood; both ends of the tube are closed with wax and the tube is then laid aside for some hours until the serum thoroughly separates from the clot. Under normal conditions the serum is clear and like water or very slightly cloudy. In the

beginning of jaundice it is yellow. This method is sufficiently accurate for all clinical purposes.

Gonococcus infection is found by E. Holt to be very frequent in children and one to be constantly reckoned with in institutions, especially in epidemic form; it is also very frequent in dispensary and tenement practice and not uncommon in private practice of the better sort. Milder forms and sporadic cases are extremely annoying because intractable; severe forms are dangerous to life through setting up an acute pyemia or infection of serous membranes. The highly contagious character of gonococcus vaginitis requires isolation as does also ophthalmia and acute arthritis from this cause. Otherwise it is quite impossible to prevent the spread of the disease in the wards of institutions. Cases must either be excluded or quarantined. For such isolation the systematic microscopic examination of smears from the vaginal secretion of every child admitted is essential, especially where there are purulent discharges. Such examinations are as imperative and should be as much a matter of routine as the taking of throat cultures in children with tonsillar exudates. In the absence of microscopic examination a purulent discharge in a young child may be assumed to be a gonorrheal. Quarantine to be effective must extend to nurses and attendants as well as to children; and the napkins, bedding and other clothing of infected children must be washed separately. Where the gonococcus is found with no or very slight vaginal discharge children should also be quarantined. A great difficulty here arises from the prolonged quarantine necessary from the fact that these cases are of very chronic character and very resistant to treatment. The danger to nurses from accidental infection, especially to the eyes, is considerable.

The plague-stricken districts in India were recently investigated by Dr. Charles Creighton who on his return to London gave the results of his experience (*N. Y. Evening Post*). The origin of the pest was traceable mainly to the exhalations of poison from the soil, which had been inhabited too long without drainage. These exhalations were especially dangerous at night, entering the windows of crowded sleeping chambers. Some of the mud villages were no better than pest holes. The plague-stricken villages of Satara are enclosed within a ring fence of bushes, sometimes with gates, and with the remains of a wall. Many of them have large and crowded populations, and the houses are nearly all built of mud upon earthen foundations. Dr. Creighton examined two in which there had been deaths a few weeks before. They were both old and crumbling, built of sheer mud, without plinths, and one-quarter of the village in which they stood was inhabited by butchers and cattle-dealers, so that the ground had become saturated with offal. Similar constructions were found in other places. At Jullunder the greater number of deaths occurred in a square block of houses of very remarkable formation—literally, a hive of some thirty or forty mud-cells. A narrow passage ran around the square, with doors at intervals in the dead wall. Entering near a corner of the square the doctor found a room which somehow held a cow or a bullock as well as the family and had a hutch-like opening in the flat roof, with a ladder to ascend by. On reaching the roof he discovered that it was a continuous expanse of thirty or forty small squares like those of a chessboard, marked off from one another only by a ridge of mud, one which he could step across, a distance of

some forty yards, to descend by another ladder to the opposite corner. There appeared here to be "more need for the scavenger than the bacteriologist."

The Subway air in New York City is again engaging the attention of the Rapid Transit Commission. The occasional warm weather has brought complaints regarding the heavy, foul and stagnant air. At present the circulation between the subway and the street is due to three causes: the movement of trains forcing it in and out; winds blowing down the hooded stairways; and, the rising of the warm air from the subway and the descent of cold air to take its place. Probably the last of these has been the prime cause of the heretofore good ventilation, for, as the surface air ceases to be colder than that underground and the connection currents stop, the breezes and the piston action of the trains seem insufficient to keep the subway atmosphere fresh and clear.

"Hardening" in phthisis.—The following is based upon Cornet: A sensitive patient in the winter time begins with rubbings morning and evening—preferably by an attendant. He is put naked in a large coarse sheet, and then rubbed with long, quick strokes from head to foot so that, if possible, a strong glow may be brought to the skin. In a week or more the partial waist rubbing is begun. The patient lies in bed and his trunk and members are rubbed with a wash-rag wrung out of water (at 66° to 92° F.) until there is a ruddy reaction. Upon this the patient is covered again and rests for half an hour. Later, when the cutaneous vessels have begun to take on their normal functions, the full waist or wet rubbings are made use of with strong patients, especially in summertime. The patient may be taken directly from his bed and given the treatment upon an empty stomach; or weaker individuals may have a glass of warm milk or tea half an hour before; or a short wash or a dry rub may precede, in order to induce a good reaction. The patient, entirely nude, is wrapped in a cloth wrung out (later wet) in 5 per cent. brine, at 90° F., so that it comes in contact with the body all over, and is then rubbed by an experienced man, with long, powerful strokes, until there is an agreeable feeling of warmth over the entire body. A wet cloth may be laid on the head to guard against headaches. The entire rubbing lasts but one or two minutes, after which the patient is laid in a dry sheet and again rubbed. He dresses without delay, and goes out into the open air for at least half an hour. After his walk he takes breakfast. Weaker patients get into bed for another quarter of an hour. The temperature of the brine is lowered one degree daily down to 70° or 65° or even 60°. This full rub should be done quickly, energetically and expertly. Relatives and unskilled attendants should not undertake this work; headache, discomfort and chilliness may result.

"The douche" can be endured only by the very strong, and should be done in the doctor's presence. The duration should be gradually increased from five to forty seconds; the temperature should be from 90° to 95° F. or warmer. The patient must rub himself during the douche. After it he is dried, dresses himself and exercises in the air. The douches are absolutely excluded in very irritable cases and those with much expectoration; they induce forced breathing and may lead to the aspiration of sputum. The rubs do not serve to cleanse the skin and are no substitute for baths. They serve, however, to harden the body against varia-

tions of temperature, but also improve the appetite and nutrition, and favorably affect the mental conditions.

The Microbe of the Tsetse fly, it is reported from Paris, has been discovered by the bacteriologists of the Pasteur Institute. This discovery, if verified, will be of enormous importance to South Africa, as it will lead to the immunization of horses, cattle and dogs against the virus of this dreadful insect, which is no bigger than a house fly, though rather more finely made. Of the color of a honey bee, with yellow stripes on the abdomen, it carries a short proboscis, with which it inflicts its sting. It is harmless to man and even to larger kind of game. Lately, the British South Africa Company, which is deeply interested in all schemes for eliminating the fly, made the experiment of introducing camels in Rhodesia from India. But these animals succumbed readily to the pest.

Hypertension is considered by H. Vasquez (*La Tribune Med.*) Physical examination may reveal accentuation of the aortic second sound, hypertrophy of the left ventricle, gallop rhythm, or doubled first heart sound. Direct palpation of the arteries is unreliable in theory and misleading in practice. There may be three forms: temporary, fluctuating or permanent hypertension. And these various forms may cause the following serious or fatal symptoms: cerebral, such as auræ, ocular, or disorders of intellect—transitory, aphasia or hemiplegia, convulsions or hemorrhage; cardio-pulmonary, such as angina or acute edema of the lungs; or urinary, such as albuminuria or glycosuria. The pathology is the result of the increased resistance opposed to the blood current—so state physiologists; while clinicians declare it to be the result of retention of fluids and hypertension and increased viscosity of the blood. There are also arterial stenoses and loss of elasticity of the vessel wall and extensive peripheral vaso-constriction; perhaps there is also auto-constriction of renal origin. Tobacco and lead seem causative; "alcohol merely increases the susceptibility to infection and poisoning." (This corroborates the statement of Councilman concerning alcohol in arteriosclerosis, which we have noticed.)

The treatment consists in hygiene and rest, the iodides, amyl nitrate (in minute doses); lumbar puncture in cerebral complications; venesection in eclampsia; *hypodermic injections of morphin* (?) in rapidly fatal complications like edema of the lungs. "They of course cannot prevent death, they will not hasten it, and they may certainly retard it."

Locomotor Ataxia.—G. Hinsdale (*Journ. Q. M. A.*, February 18, 1905), reports the gradual disappearance of symptoms in an apparently typical case of tabes without a positive specific history. The treatment was by rest, massage, electricity and educative movements; with nitrate of silver and belladonna internally. (The iodides were not tolerated in this case.) In eight weeks the weight increased forty pounds; albumen and casts disappeared from the urine; in three months the patient appeared quite well. After three years of usefulness he returned with similar symptoms. The same treatment (with the addition of gr. 1-20 bichloride b.i.d.), was employed, with like good results. This case emphasizes the value of rest treatment when employed sufficiently early, with electricity and massage or exercise. Cure is not here claimed; but improvement is very evident.

The cardiac area in childhood. Guido Sindò (*Brit. Jour. of Child. Dis.*, Vol. 1, No. 12) suggests that cardiac percussion in children should be light, trusting more to the resistance perceptible to the touch than to the ear. In the very young the heart is very high (second space), its position and direction almost horizontal, the apex 1, 2 or even 3 centimetres outside the mid-clavicular space. With increasing age the heart becomes lower (third space) and assumes a position and direction more vertical, the apex approaching the mid-clavicular line, and coinciding about the seventh year with the nipple; subsequently it is found below and inside it. From birth to the second year the heart undergoes rapid enlargement, then moderate increase to the ninth or tenth year, when it undergoes a further rapid development on account of the ever-increasing exigencies of the organism in response to the development of the genital system which is initiated at this time. The area of absolute dulness, which in the child is always relatively larger than in the adult, should be investigated in every case, together with the relative dulness; only this method is reliable.

The elastic abdominal belt for pertussis is described by Dr. T. G. Kilmer, who devised it, as a stockinette band placed about the sufferer in the same manner as the orthopedist puts on a plaster of paris jacket. The band extends from the axillæ to the pubes and fits the body snugly. Two muslin shoulder straps prevent slipping down. On the stockinette band a single width of silk elastic bandage is sewn, extending entirely around the body and covering the abdomen. This silk elastic bandage is of the same quality as that used for elastic stockings. For a child under one year but one width (five inches) of this elastic bandage will be found necessary, in an older child two widths will be found necessary to cover the abdomen entirely. This silk elastic bandage is pinned in place when very slightly upon the stretch, after which it should be sewn to the stockinette band underlying it, all around its entire edge; this procedure keeps the silk elastic belt flat and prevents its rolling up or becoming creased. The lower projecting portion of the stockinette band should be pinned down to the outside of the diaper or other clothing, thus keeping the elastic belt smooth over the abdomen. Out of eighteen patients on whom this belt was used, Kilmer says cough was relieved in twelve and vomiting in all but one. Any mother can make this band and belt with the materials here mentioned.

An "optologist" has invited Dr. A. Rose by letter to visit his dark room, where he uses his luminous electric ophthalmoscope, with the assurance that "if I have not yet seen his New York offices I have missed something." It is one of the most pathetic phases of life that we are all bound to miss something or other now and then, be cause of the mournful brevity of human existence and other reasons; but it is cruel to emphasize this misfortune. However, Dr. Rose, who happens to know his Greek and Latin very well, has never until now come upon the word optologist. Ethnologically it can mean only a wise cook, for optos is roasted or cooked; opticos is somebody who understands to perfection how to roast; optologist must then be a wise roaster. We fear Dr. Rose stands to lose either way; if he does not visit the establishment of this wise roaster he will have "missed something;" if he does, he will undergo, we fear, precisely the same experience.

MISCELLANY

In Indiana, consumptives are not allowed to teach school.

Dr. G. Frank Lydston.—This accomplished writer of Chicago, has been made a fellow of the London Society of Authors.

Horse meat in tuberculosis is said to be advised by some French physicians, who claim that it is better than beef in such cases.

The London death rate for 1904 was the lowest ever recorded—12.9; and the number of cases of infectious disease was the smallest since notification has been made compulsory.

"Coffee heart," characterized by the shortening of the first sound, is a term lately added by medical examiners for life insurance companies to their classification of functional derangements.

A medical degree at eighty has been secured by Phedor Maratzevitch from the Kieff University. This venerable man had studied medicine half a century ago, but did not then obtain a degree.

In utopian Sweden, doctors never render bills. The rich pay liberally; the poor as they are able; the very poor not at all. Yet the doctor attends all—as faithfully the one as the other. So we are informed!

Plaster of paris dressings are easily removed by immersing the part in a warm bath for twenty or thirty minutes, when the plaster becomes so disintegrated that the bandages can be cut with ordinary scissors.

The sweatshop atrocity has about reached its limit, declares the *Journal A. M. A.*, in the case of a female infant of eighteen months, who was discovered at work in a tenement house. It was rolling balls in paste for the mother to work with.

Trichina in hogs is oftentimes brought about in a very loathsome manner, as stated in the descriptions in *Collier's Weekly*, in the Chicago stock yards. Hogs have a habit of catching rats about farm-yards and eating them, thus contracting trichinosis from these rodents.

A group of four eminent physicians, it is stated, will meet in London to sit for a group portrait to be painted by Mr. John S. Sargent. The idea originated with Miss Mary E. Garrett, of Baltimore, who will bear the expense of the painting. The four men are Drs. Welch, Halstead, Kelly and Osler.

From Darkest Russia comes a ray of sunlight more serene than any we have felt in this community. It takes the shape of an imperial edict to the effect that the families of physicians are entitled to a pension when the physician has succumbed to infection acquired while fighting epidemics in the public service.

A roof-garden to every house is a practical scheme which, it is rather surprising, has never been realized. Dr. Northrup describes in *The Medical News* (March 25) a roof-garden made at a cost of \$150, which affords in all weathers, a safe playground for the children above the city dust and noise line, and allowing greater freedom in play than the street or the porch.

Formalin in milk has been found detrimental by Engel (*Zeitschr. f. Aerztliche Fortbr.*, No. 1, '05), who concludes that while the addition of formalin arrests the growth of bacteria in milk for the first two days, their development is hastened after that period in room temperature. Furthermore this chemical interferes with the coagulation of the milk and has a detrimental effect upon the digestive apparatus.

The Association of American Medical Colleges adopted a uniform minimum curriculum at its meeting in Chicago on April 10. A high-school course of four full years, representing a certain specified number of hours' credit in each subject is an essential preliminary. A committee will pass upon the value of medical studies taught by colleges of liberal arts. The secretary-treasurer is Dr. F. C. Zapfee of Chicago.

A narcotic bomb is described by our much-esteemed oriental cotemporary, *Practical Medicine*, of Delhi (March, 1905). This bomb, which may be fired from any gun, was invented by an Austrian army-surgeon. There is a time fuse attached, which when dropped among the enemy will not explode, but will fill the air with narcotic gases strong enough to make two thousand men unconscious for several hours.

An iron ring from human blood is worn, states the *London Globe*, by M. Barruel, head of the chemical laboratories of Paris, who, having in his time practiced much phlebotomy on human subjects, has systematically extracted the iron from the blood collected. The metal was kept in the shape of minute globules or pearls, until it occurred to M. Barruel to have the whole welded into perhaps the most remarkable finger-ring in existence.

The cost of food per capita averages in America \$70 a year, in France \$48, in Germany \$45, in Spain \$33, in Italy \$24, and in Russia \$40. The American eats 109 pounds of meat a year, the Frenchman 87, the German 64, the Italian 28, and the Russian 51 pounds. The American consumes 380 pounds of bread, the Frenchman 540, the German 560, the Spaniard 480, the Italian 400 and the Russian 655 pounds, states the *Women's Medical Journal*.

Knives can be safely sterilized, it is declared, by chemical and mechanical means without the use of heat in any form; most surgeons are now using carbolic acid or alcohol or both; emersion in 95% alcohol has the least and boiling the most effect in dulling the edge of a knife. A good plan is to keep in close touch with an instrument maker who will engage at about 15 cents a piece to sharpen one's knives frequently and keep them always in such order that they will not fail to do good work.

Radium in skin diseases was discussed by Davlas (*Lancet*, March 4, 1905), who considered it effective in only three forms—tuberculous leprosy, a form of epithelioma (perle) and vascular naevae; and in these diseases only where the lesion is limited in degree. It is not superior to older methods of treatment. The X-rays give better results where the lesions are widely spread. Radium, however, if it were cheaper, would be preferable, as its application is much simpler, and practically no apparatus is required.

A hospital boat is now building for the New York Health Department, in which contagious cases will be transported from various parts of the city to North Brother's Island, and also in returning convalescents to their homes. There will be eight wards of six beds each, on the main deck, all separately inclosed in steel, with dust-proof ceilings and air-tight doors and windows to allow separate fumigation at suitable times. There will also be a large morgue, and room on the deck for an ambulance, and a fine engine. The ward windows will be large enough to permit of escape in case of fire or accident. On the top deck will be a saloon for convalescents.

CEREBRO-SPINAL MENINGITIS.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

THE disease known by the name of cerebro-spinal meningitis, if a fully developed case, is an inflammation of such intense gravity that its presence causes most serious concern. The anxious friends direct many appealing glances toward the perplexed physician in charge as pilot, while he, in turn, usually finds himself handicapped by the masterful conditions that confront his routine medical skill. The effatus of our professional conceit, if we have banked on it, shrinks naturally to a shred of humble hope, and our learned postulates about pathology, etiology, thermogenesis, pyrexia and reflexes, for the enlightenment of anxious bystanders whose hearts are trembling with suspense or crushed with the weight of grief, are liable to wane into empty sound and barren sense in face of bald therapeutic failure to effect understandable relief and cure.

Fortunately there are varying degrees and shades of most diseased conditions, and the absence of the elements of communicable contagiousness protects community from the scourge of true epidemics of cerebro-spinal meningitis. Cases appear periodically, as a result of conditions that effect health, are scattered because of varying sensitiveness of different individuals to these conditions, but the general infrequency of the disease makes room for a startle to profession and people when a series of cases manifest themselves.

In staid, swerveless spite of voluble technical theorems regarding the deviating rods and wrinkles of adventitious bacilli ferments developed in diseases affecting different locations and tissues of the human body, the one squarely fundamental fact remains unchanged, namely, inflammation is essentially inflammation wherever it is located; and we are wiser if we never forget this indisputable pathological certainty in our recognition of the problem of therapeutic province for relief and recovery. We are, therefore, in position to see that it is not the mere condition of inflammatory area that determines the degree of difficulty and danger. For illustration, the external skin differs from the mucous tissues of internal coverings, and these again from the expansive serous tissues. The functional products of each differ from the functional products of the other both in health and in disease of said tissues. A positive spinal meningitis may speedily prove fatal because the degenerative inflammation involves the fibro-serous tissues that cover the medulla oblongata or "seat of life" and the cervical portion of the spinal cord or strait through which the brain extends the functioning energies carried on in detail by the great sympathetic nervous system of the body. These fibro-serous membranous coverings are highly vascular with their network of capillary arterioles transmitting blood through them. But rigidly encased as these are by the defenses of unyielding bone substance, there is very limited space for accommodation of the turgescence or expansion that attends local congestion, and also for the effusion that naturally follows inflammation.

The absence of accommodating space here reacts as direct mechanical pressure upon the engorged tissues surrounding the medulla and cervical cord, and thereby as local obstructions greatly augment the difficulties to recovery and dangers to life in manner as we may presently perceive. If an equally small area of inflamed tissue had occurred upon the outer surface of the body

or skin, it doubtless would be termed a patch of erysipelas. There it could be treated locally and adequately prescribed for with every vital chance of prompt cure. If, again, an equally small area of inflamed tissue had developed on the internal serous coverings, it would be termed a pleuritis or pleurisy or a limited peritonitis, and in the main successfully managed to successful recovery. On the mucous surfaces it would be termed tonsillitis, diphtheria, bronchitis, possibly pneumonia, *et cetera*, according to what particular location was scathed; the differences in treatment and results depending logically on access with remedies to parts involved, especially on the co-existing status of the blood, and on the time the case vitally allowed for winning out a convalescence. It stands unquestioned that in inflammation of the external parts of the body, there is unlimited space for the turgescence or swelling. In the mucous tissues generally and the peritoneal tissues there is accommodation for turgescence and effusion. The vital centres are not directly and violently encroached on, and time allows opportunity for resolution and recovery.

The inherent type of inflammation, wherever located, is logically the same in each case,—always reckoning into the account the varying qualities of the blood of the individual involved, and which essentially varies the phase or expression of the abnormal manifestation and mainly gauges also the rate of recovery or its reverse; but while our recent over-strenuous researches for bacilli and serums have striven to force into vogue a novel change of medical comprehension and methods, it is already demonstrated that the bacilli and antitoxin serum fad has not and never will or can change the radical facts of disease nor reduce the recurrence and prevalence of even our most common forms of disordered health. All modern suggestion about the toxic aggression of a vagrant bacillus finding its way from the air to the base of the brain-covering as cause of cerebro-spinal meningitis, with the anticipation of conventionalizing a serum through the blood of the horse or other animal to inject into subjects either as a prophylactic or a curative procedure, must prove but a fallacious mirage on the therapeutic horizon when we face the local situation of the medullar and cervical membranes caged with the resistance of unyielding bone structure. If the circulating blood tone is below normal par, no antitoxin injection can restore such blood to healthy efficiency for the mission of healing an inflammation. The blood of the body is a constructive agent that cannot be reconstructed in a day or a dash if in degenerate state. The blood status gauges the progress of recovery independent of the micro-organism products of any disease.

In the application of this indisputable truth to cases of spinal meningitis we will now carefully remember that it is by the healthy state of the blood that the contractibility of the capillary vessels is sustained, while a morbid change or impairment of the quality of the blood impairs also the contractility and motivity of the capillary vessels more or less to even complete stagnation. In other words the tissue elasticity and contractility of the arteries tend to impel their contents and empty them into the receiving channels of the veins, and thus unload the engorgement of congestion. But with the loss of this impelling energy because of lack of blood stimulus through impaired quality, the engorgement of congestion under local mechanical repression blocks the circulation through the inflamed tissues, and

stagnated blood at the base of the brain means hastened dissolution. Medicines then are helpless to help, and injections of antitoxin would prove as futile as to shoot a feather arrow into a well of muddy water to rescue a strangling man. Stagnated blood in the mat of arterioles surrounding the pons and medulla and cervical cord means a blockade there of coagula, and coagula in blood-vessels in the brain mean death. Again, in inflammation there follows effusion, which, in spinal meningitis can but increase the local pressure, and, at the temperature of the body, degenerative process sets in promptly. Dissections have revealed exuded lymph of yellowish or greenish hue, sero-purulent effusion evincing local decay,—matter as dead as Julius Caesar awaiting its undertaker bacillus—decaysome material not produced as such by the operation of bacilli, but developing bacillian ferments spontaneously as the result of exhausted vitality.

The recent visitation in increased numbers of spinal meningitis in the cities of New York and Philadelphia has awakened in us unusual interest concerning the phenomena of this form of disease. Certain of our younger brethren, unfamiliar with its serious manifestations, supposed that a new disease had appeared. But cerebro-spinal meningitis has been studied and described by intelligent authors well back in the early forties of last century. According to Condie, there prevailed epidemics of the disease in 1844 in different parts of France, Ireland, at Gibraltar and in Belfast, inferentially induced by unsanitary conditions of housing, and descriptions of which dovetail with our American form of the disease as I have witnessed it in my professional observation. Encephalo-meningitis has not proved quite so serious or so speedily fatal, when fatal, as has the cerebro-spinal form, doubtless for reason of the anatomical environment already described in this paper. When the present writer was a medical officer with his regiment in the Union Army during our late Civil War, 1862, he had with him ready for reference an early copy of Neil and Smith's Compend., in which cerebro-spinal meningitis was so adequately described that I had no difficulty in recognizing my first case of this distressful disease. It was a typical case, with violent delirium, unsteady pulse, grinding teeth, fearful convulsions, rigid contraction of the head backwards, even distinct development of areas of congestion upon the skin or "spots," by the appearance of which in such cases this form of disease acquired its sobriquet of "spotted fever." Soldiers in crowded quarters, especially new recruits, suffer from unsanitary influences. I accounted for this case from the circumstance that our regiment had been crowded a week in depressing cold barracks at Washington, D. C., during a bitterly rigid spell, December, 1862. Thence the regiment was crowded on transport vessel to Newport News, Va. This young man had been especially humorous, worked his brain intensely as sport-maker for his comrades, but on arrival at Newport News the camp had only got up its tents when he was stricken. He expired in about three days after the attack developed. His blood had been poisoned by crowd air; his cerebellum was sensitive; his mental exertion had induced excessive blood pressure to the brain, and the receptivity of the medullar tissues landed there the congestion and obstruction from which he could not survive. No other case of meningitis in our regiment of a thousand recruits followed this fatal case, although no attempt whatever was made at the fear-rousing exploit

of quarantine. The fuss and flummery exhibited by Boards of Health have not averted any serious diseases in community because of the agitation roused in the minds of people by the hardship and perturbation wrought by over-zealous official procedures. The spread of disease is as much due to mental receptivity as to actual contact where the lowered blood status makes a ready soil to grow abnormal results.

By a sensational newspaper report it was stated to the gleaming public that the chief medical inspector of the Philadelphia Health Bureau had announced to eager interviewers that the cases of cerebro-spinal meningitis in this city "had all died," and that the disease was contagious, also that "there is absolutely nothing that a person can do to prevent the disease." Such unguarded expression by an official whose every word is caught up as fact, readily starts the "contagion" of public panic, and the pressure of fear and dread in the brain of apprehensive persons tends to invite the development in the sensitive medulla serious congestion and its sequences. It is expedient to teach that cerebro-spinal meningitis is as preventable as is any other tissue inflammation. The disease is a result of exhaustion or depression of the nervous system and degenerate state of blood, blood the qualities of which have been impaired below the normal type, as predisposing cause in sensitive brooding temperaments. The seriousness of its location may be attributed to accident of circumstances and personal brain impressibility. Inhaling toxic crowd air, filth air, spoiled air of any nature to mastering extent, disposes to development of spotted fever. Hyperesthesia of brain tissues from mental sensitiveness, thought engorgement of the medulla, brooding discouragements or disappointments, excess of hilarity, the cerebellar turgidity of amorous propensities, each or altogether invite invasion of spinal meningitis. The natural sensitiveness to emotion of the child brain, its responsiveness to fears and agitations, open early gates to brain disorders in the presence of physical depression. How often we hear it said of a young child, made captive to cholera infantum, et cetera, "It went to the brain and the doctor couldn't do anything for it!"

The unusual severity of our long winter with closed doors and windows of most buildings enhanced greater combustion in homes and work places of the varied fuels and illuminants in common use, and which diffused their toxic carbonic oxide gases into the housed-in breathing air of the people. And the extended employment of gas stoves and coal oil stoves for heating sitting-rooms and bedrooms during the long nights; also the use of kerosene lamps and gaslights all night in sleeping-rooms; and besides these toxic house gases in homes and business places, reckoning must be made of the sweep of poisonous fuel smoke and gases from the uncounted house chimneys, from chimney stacks of power houses and factories, from belching locomotives in our large cities—from hundreds of unthought-of agencies that perjure the outdoor breathing-air of towns and cities: all of them radical despoilers of the blood and nerve tone through interference with true oxygenation of the blood and increasing its impurities altogether forcing the gates to widespread consumption, influenza or gripe, diphtheria, pneumonia, nervous prostration, and even the distressedly acute dangers of spinal meningitis. The flimsy hypothesis of contagion conveyed by bacillus in all these forms of disease dwindles to a transient bubble as compared to the enormous havoc and contin-

uity of such deleterious agencies that undermine the vital support of health as I have just summoned to more thoughtful attention and analysis. The quite universal dominance to various degrees of poisonous carbonic oxide gases in the breathing-air of the people, through ignorance and neglect of their stealthy nature, blight the blood corpuscles and capture the nerve tone through the production and retention of excess of devitalized waste matters of the system. How? Through the evidently inadequate oxygenation in the lungs of the vitalizing blood current—because the bad air inhaled prevents the necessary purification of the blood as it flows to the lungs to be re-vitalized. Like filthy water for cleansing, so filthy air, toxic air, never properly relieves the laboring blood of its impurities. With the human body abusively flushed with badly oxygenated, partly devitalized blood corpuscles, what more natural than depressed functions and sluggish areas of local congestion, a clog or blockade in the capillaries directly merging into what we know as inflammation. Blood burdened with natural impurities is poisoned blood, and some expression of inflammation somewhere is but a natural sequence. It will be noted also that those who live outdoor lives are relatively hardy and less subject to the illnesses of the seasons; while they are our houselings who grow tender and sensitive to the atmospheric depressions indoors, and hence constitute the rank and file of the continued army of invalids.

In the anthracite mining region of Pennsylvania, where I practiced during the late sixties, coal stoves and kerosene lamps were profusely used in every house and shanty. There being then no other mode of prolonged lighting, the oil lamps were habitually burned in many or most sleeping-rooms all night—especially so because of the children. I have nowhere else ever witnessed so many cases of what we term cholera infantum terminating in meningitis, with tensely retracted head, smothered shrieks of distress, staring eyes, drawn countenance, struggling respiration and fatal termination as among children in that mining section. But why would not the inception of an exploding toxemia manifested by spinal meningitis in children, have its prodrome symptoms of suspended digestion, vomiting stomach and purging bowels through reflex of prostrated nerve centres engaged in conducting the nutritive processes? In time it became evident that a serious endemic of cerebro-spinal meningitis prevailed also among youths and adults, and the larger percentage died—while those who survived were slow and tedious to recovery, and pitifully incapacitated for the work and employments of life as reward for the task of living. These cases were generally carefully attended, and with no evidence of contagiousness following. Eventually a council of local medical men studied the unhappy situation, and it was the consensus of their conclusion that the majority of cases and deaths occurred in families who banked back the coal gases of their fires peradventure over nights into their house air by lifted lids and draft-shutting stove dampers, and burned coal oil lamps all night in their close and stuffy sleeping-rooms.

In applying this valuable lesson we should remember that corollary situations obtain in very many city habitations, and their room crowding mischiefs are no less obvious. The difference between a burning gaslight and a kerosene lamplight is a difference in the form of combustible material, with no practical pathological difference in the toxic results of their combustion in the

breathing-air of closed rooms. Smell or no smell, it is the combustion of carbon element by the consumption of oxygen in the feeding air, which process, by consuming the needful oxygen of the room, is setting free for inhalation the carbonic oxide gas devitalizer quite the same. Besides, the modern methods of producing illuminating gas have made the stealth of its poison when using increased treacherous and dangerous to the breathing surfaces, to the blood corpuscles and nervous energies. The people are yet ignorant, and thoughtless because ignorant, not in regard to what they eat three times a day, but in regard to the vitally more important matter of what they breathe twenty times every minute in the twenty-four hours of every day through life.

The tremendously increased use of these modern commercial handy-andy gas stoves and coal oil stoves, in families for culinary purposes and for heating rooms, is a growing and perilous menace to the inconsiderate people. The combustion with these affairs runs at wholesale rate in every apartment where used, and having no practical chimney device provided for conducting into a flue the carbonic oxide gases from the combustion of the consumed fluid fuel, said gaseous poison is poured out broadcast into the house air and there poison or at least perjure every breath of the inmates while in use. These extra-handly appliances or their equivalent during moderately cold and wintry weather were beyond rational doubt active causative factors in developing increased cases of spinal meningitis in its recent invasion among middle and lower class families of our cities during raw wintry months just passed. And how many wise pathologists of our beloved fold were blankly telescoping their fertile fancies for some discoverable "germ" amuck the unsanitary output of air-spoilers! Funny! I pick up a clipping headed "Spotted Fever Baffles Science." But the cause of spotted fever need not mask in mystery if studied inside the home, the house, the office, business place, possibly the school or Sunday school room. An eminent German authority is credited with saying: "The germ of the disease probably enters the system by nasal inhalation. No one knows, now, what causes an epidemic of the disease." Shall we wait curiously till his eminence catches his fructifying "germ" and transports it through winding ways to the coverings of the oblongata of some unfortunate's brain to test its special virility?—or prefer to look out for our home-made everyday toxic environments for practical comprehension and prevention of cerebro-spinal meningitis?

In the raw month of March, last, I was called to a lady in middle life who follows dressmaking for livelihood. I found her anemic, prostrated, despondent, with acute sensitiveness and nausea of stomach with retching after every swallow of nourishment or drink, pain in back of head and down spine, feverish, weak pulse, unsteady voice, vertigo and tendency to delirious talk. She was wintering, working and sleeping in a small, third-story back room, overcrowded with her effects, warmed by a fancy coal oil stove, lighted at night by a kerosene lamp, which, because of her sense of loneliness in the dark, she allowed to burn all night in her shut-up room. Now, then, did I need to speculate over any microbe conundrum in order to shape my policy of indicated treatment for this good woman's forlorn situation—when there was all that pernicious enginery of devastation of vitality boldly staring me in the face? I did,

however, unbolt a mild electric gleam of common sense hygiene on the spot, and by prompt transformation of her environment to normal chances, together with harmonious therapeutic aid, saved her from collapse into spinal meningitis, and returned her to her appreciated fashioning of ladies' gowns.

We all modestly approach the subject of treatment in spinal meningitis. All professional claims to glorious success should be weighed on the scales of qualified probability. There are two afflictions of which the writer has been in the habit of affirming that he would not promise to cure, namely: consumption in the aggressive stage and brain fever. According to the older authors, who really gave this disease extended study, but when bleeding was in tempting vogue, much like the passing fashion of antitoxin procedure at present, the treatment usually began with venesection. But with the present civilization and temperament, I would as soon advise assassination. Cupping and leeching behind the ears and at back of neck, another old-time barbarity, is of relatively doubtful service except to add their sanguinary impress of heroic parade like the present mania to knife the ovary or appendix for every stubborn pain in the lower abdomen. In the late sixties, bromide of potassium was the popular remedy for quite every disorder that was tagged to the nervous system. It had its values—on the limited express; but even its prestige was overrated by excessive uses. However, when Prof. Hammond, of New York, published his comprehensive paper in the *Psychological Journal*, showing that although the bromide undoubtedly sedated an excited brain, its profuse employment in given cases produced brain anemia to the extent of mental weakness, then the turgid enthusiasm of its zealous apostles waned till the bromides gravitated to normal values in therapeutics. Along with other practitioners, I used the bromide systematically in all forms of cerebral affections about that time; possibly it helped some mortal to live. We never know the exact dividing line between therapeutic efficiency and vital tenacity in pulling a case to convalescence.

The comparative infrequency of meningitis will dispose younger practitioners to turn to publishing authors and their repeated quotations of what was written fifty or more years ago. Cauterization, cold douche and counterirritants have been tested with indifferent results. Opium was praised sixty years ago, probably because opium was then a universal dope and seemed a relief because it benumbed cerebral sensibility, but with no reckoning of its unequivocal harmfulness in other respects. It did not save the cases, eighty per cent. dying. Two of our prominent Philadelphia authorities have recently repeated the storied book lore in regard to reliance on opium in meningitis. After all this interval for broadened thought such iterations suggest formal rubrics framed for generations ago. A modern University Professor, of the Old World, recommends punctures to the spinal cord, if rightly reported, for drainage of the fluids from the inflamed membrane for the purpose of reducing local pressure. This operation would have to be very accurately gauged as to depth. The puncture would need to be kept open for systematic effect. I think, however, that evacuation of effused fluids below the oblongata or at cervical cord might be effected more directly by the medium of the suction syringe or aspirator. No permanent opening would thus be made for admittance of external air. At best, the problem is

practically problematic, but successful advances on this line may be developed.

In agreement with my present reasoning there is no specific so effective in spinal meningitis as continuous supply to the lungs of pure fresh breathing-air tooxygenate and revitalize the blood current. Deoxidized, devitalized breathing-air operates as the mastering cause of the disease. In the presence of a floodtide of good blood a vagrant bacilla would prove as a toothpick against a Japanese gunboat. Reoxidizing, revitalizing breathing-air, every moment and hour must naturally promote restorative effects. Opium, itself a poison in decided doses, is a stultifying deceit in meningitis. As a winding "sheet anchor" opiates have masked the way to multitudes of deaths. It stupefies cerebration and sensibility, dries the secretions, suspends digestion, nauseates the stomach, locks the bowels, benumbs the general functions—produces altogether a prodigious reversal of conditions most needful for the prospects of the patient. "What fools we mortals be!" I would avoid opiates as I would avoid a sneak strangler in the dark with a chloroform bottle up his sleeve.

Iodide of potassium in full doses has often been pushed with the idea that an "alterative" effect must be obtained. But it needs be remembered that presumably we are dealing with a non-specific or non-syphilitic condition in general cases, and the devitalizing dosages of iodides but encumber the way to reprieve. Cold applications to the head or ice bag beneath the cerebellum and against the neck, with idea of reducing presumable local internal heat of inflammation, has been a formal procedure of antiphlogistic treatment. I will never resort to this again in meningitis. In my later comprehension, continuous or positive coldness directly tends to the formation of coagula in the area of engorged membranous tissues, and thereby hastens the pace of death. In my conviction the ice bag has complicated and inhibited the chances for many recoveries. In view of this philosophy, warm applications, bags of warm water, would facilitate more freedom of local circulation—an absolute necessity to obviate the disposition to local blockade and coagula. Free saline catharsis at the start, and this moderately maintained throughout, operates as a serum drainer of the entire economy, and is good practice. Full body baths in warm water, preferably in the bath tub, with head and face protected, repeated several times a day, are most valuable relaxants of nerve tension and afford the comforts of a general surface derivative. The hair should be carefully shaved from the back portion of the head. After being lifted gently from each prolonged bath, pure alcohol should be freely mopped upon the skin with a tuft of absorbent cotton, particularly also upon the scalp and spine, with the patient upon a soft wool blanket, in which he will remain wrapped to promote a soothing absorption and the equalization of the temperature. The absorption of abundant pure alcohol will favor systemic stimulation and quiet, without cerebral harm. Mild counterirritants to wrists and ankles to divert circulation to the extremities is in harmony with aim to reduce engorgements of coverings of cervical cord and medulla.

In intervals between baths of twenty to thirty minutes each, because of their hygroscopic or moisture drawing action from the surface without injury to the same, quarter inch layers of antiphlogistine, or of creta menthol, or their legitimate equivalents, should be spread around the back of the head from which the hair has

been shaved, and of the neck—and the application then evenly covered with absorbent cotton comfortably held in place, for continuous divertant locally that can nowise tend to formation of coagula in the mat of congested and inflamed tissues inside. The greatest possible gentleness and quietude must be maintained. Even a sharp tone of voice may produce shock and spasm. It is not well, for obvious reasons, for the patient to rest continuously upon the back, since prolonged pressure there hinders help. Rest upon either side, and the neck spared from short bends by judicious arrangements of pillow supports filled with soft clean cotton (no feathers) facilitates freedom of circulation between the brain vessels and the relieving distribution of the body.

As to medicines, as internal soothers and antiseptics I dispose to using moderate doses of finest acetanilid with less proportion of salol, these braced topically with a grain of salicin, each dose at two or three hour intervals. Quinine is objectionable in congested head troubles. To further reduce tendency to formation of coagula, an occasional tang of muriate of ammonia in cold water will advance chances. The normal heart power must be protected. Since it is affirmed that normal cell action depends on the presence of phosphorus, one two-hundredth grain phosphorus and one one-hundredth grain strychnine hypophos in combination, every three hours, during crisis conditions, is in harmony with the objects sought. Impoverished blood cannot adequately sustain vitality nor recruit nature's struggles from depression. Good blood is a natural healer always. Pure air and liberal nutrition, therefore, are of supreme importance. For forty years I have heartily fed the sick, with my soul believing in the preeminence of the therapeutic virtues of food to facilitate reconstruction and afford general conveyance and distribution of medicines to the blood. In meningitis the patient may fail to masticate, but will swallow liquids. I approve of the more easily digested liquid foods, raw fresh egg, milk without the addition of toughening whiskey, liquid peptones or panopeptones, three or four times each twenty-four hours one or two tablespoonfuls of India pale stock ale, a sip several times a day of unfermented grape juice, nutritive broths agreeably seasoned, all that can refresh the vital functions through their ordeal. To let a case exhaust itself through starvation is to annul every effort intended to promote a recovery. A case who lives in illness through feeding on his own sick flesh, because of fearing to feed him, lives at very dying rate. Whatever may be accomplished for relief of cerebro-spinal meningitis must be done by assisting disabled nature and by persuading disordered functions back to normal—nothing can be successfully effected by resort to heroic or bludgeon-like methods.

1726 North Twenty-second Street.

A surgical triumph is reported by the *Medical Times and Hospital Gazette*. Some twenty years ago, Sir William Macewen operated upon a young child for a rare condition of mal-development. It had been born without a bone in the right arm, which, when brought to him, lay limp by its side. Instead of amputating, it was decided to try and save the limb. Small sections of bone taken from other patients, who were under treatment for the cure of bow-leg, were transferred to the boneless arm, there to continue their growth and become amalgamated. Thus was the missing humerus eventually supplied; and the patient has now a very useful arm.

CONSTIPATION, THE HOOKWORM OF THE NORTH.

BY F. B. BRUBAKER, M.D., MIFFLINBURG, PA.

NOT long since I had a conversation with a physician who has spent some time in the tropics, and who, therefore, is conversant with the diseases peculiar thereto. In speaking of the natives he made the remark that they were in a state of semi-starvation from lack of proper and sufficient food. I replied that it was indeed a startling discovery to me to learn that such was the case, that I had always understood, or at least believed, that owing to the luxuriance of vegetation in all, or most all tropical countries fruitage abounded on every side, and that all the native was called upon to do was to eat and grow fat. He assured me that although my conclusions were true, that while bananas, oranges and the like could almost be had for the asking yet from some peculiar lack of nutritive principle or from lack of meat he was half starved. I replied that I had always thought that vegetables and fruits sufficed for the proper nourishment of the inhabitants of the tropics, arguing that sugar by being nearer the process of oxidation within the body, than meat, offered nutriment requiring less work on the part of the digestive organs than albumen, sufficing for the proper maintenance of metabolism, and referring to the health and vigor of negroes feeding exclusively on cane sugar. "Perhaps," says I, "we are here dealing with some widespread diseased condition existing among the inhabitants of the tropics which may ultimately explain the state of semi-starvation witnessed, says he by Stanley in Africa, himself in Cuba and Puerto Rico, and by many able observers, in the Pacific Islands." I asked him whether he was acquainted with a condition known as uncinariasis or hookworm disease, and he said he was, when to my utter astonishment I learned that it had never occurred to him that perhaps this might be the true explanation for what he saw. The word constipation, as usually employed, signifies a state of the intestinal canal in which the alvine evacuations too seldom occur. It is not our intention in this article to include obstruction whether due to impaction, concretion, tumors or stricture. Let us inquire in the first place what produces constipation and we shall find that all cases resolve themselves into one of three groups:

1. Those arising in deficient secretion.
2. Those due to imperfect action of the muscular layer of the bowel.
3. Those dependent on derangement of the nervous apparatus.

It is somewhat difficult to set down any standard to guide us when we come to inquire into what constitutes healthful bowel action, prolonged retention of feces being within certain limits of such common occurrence and oftentimes attended with so little inconvenience. What is normal for one man along this line being abnormal for another. However, it may doubtless be accepted as a general rule that in the vast majority of individuals nature calls once daily. Yet on the other hand many who are apparently equally healthy have their bowels relieved but once every two or three days, or even but once a week or fortnight. Cases are indeed not altogether rare in which some degree of good health has been maintained for many years, although fecal evacuations have occurred only at intervals of six weeks to two months. Dr. Wm. Roberts reports the case of a lady accustomed to the use of large doses of opium, whose regular habits consisted in going to stool once in six

weeks and who, during one year of her life had but four calls occurring at intervals of three months each. Quite contrary to this there lives as an acquaintance of the writer a man who unless nature calls him to stool three to five times daily suffers first from headache to be afterwards followed by fever and general malaise. Thus for most persons whose daily habit in this respect is regular the retention of fæces for two or three days is apt to produce not only local uneasiness such as fulness, heat, tenderness, with a tendency to piles and flatulence, but also some degree of general constitutional disturbance, indicated by headache, foul breath, loss of appetite and dyspeptic symptoms, which not infrequently terminate with more or less tenesmus and dysenteric diarrhœa. It will therefore be seen that it is extremely difficult to say in all cases just what constitutes constipation.

The physical signs of severe and indeed oftentimes moderate cases of constipation, are too well known to call for elaboration here: the coated tongue, fetid breath, dulled or perverted taste with indifferent or voracious appetite, constitute a clinical picture in nowise uncommon, the whole closely simulating, if not partaking of the signs and symptoms of atonic dyspepsia. Dulness of percussion along the course of the cæcum and colon especially over the cæcum and sigmoid flexure, indicating the existence of fæcal accumulation, while digital examination too often reveals the presence of scybala, which by interfering with the return of blood from the inferior hæmorrhoidal veins, will cause them to swell, and pushing before them the mucous membrane, will produce hæmorrhoidal tumors. By the same mechanism congestion of the pelvic viscera may occur with its numerous consequent harmful results. There is scarcely a condition known to the gynæcologist which may not in some way be called into account or made worse when existent from other causes by the coincident state of constipation, while the long-continued retention of hardened fæces has finally an effect on the mucous membrane, in the extreme deleterious setting up of an intestinal catarrh, the irritation of which gathers strength with its persistence, and results in diarrhœa, the two extremes alternating. As to the evil effects of the state of constipation exclusive of the inflammatory, the subject may be summed up in one short sentence, viz.: The impairment of nutrition. The intestinal digestion and absorption becomes languid and hence the function of primary assimilation is inefficient. The result of this condition being shown in the thinness of body and the diminished muscular activity. Under these circumstances the products of intestinal digestion enter the blood in an imperfectly elaborated form, various sedentary disturbances occur. These relate primarily to the skin which largely takes upon itself the duty at once vicarious, but nevertheless timely, for did not other avenues exist and did not nature, here as elsewhere, ever maintain her watchful duality man would quickly succumb with leukomaine poisoning, but she does so reluctantly and warns the individual by setting up a psoriasis, eczema, erythema, urticaria, lichen, etc., to disappear when the cause is removed. Nor is this all, for without the evidence afforded by a defined eruption the functions of the skin are nevertheless altered and disturbed by constipation, for the cutaneous secretions are deficient. The epidermis is dry and harsh, the circulation languid, extremities cold, the hair and nails brittle, and wanting in a proper physiological activity. Especially interesting are the researches of Stich on the toxicity of fæcal matter. The aqueous extract of a dog's excrement injected

into the veins of the animal was found to be very toxic, but the same extract introduced into the stomach or rectum of dogs was completely inoffensive. It must, therefore, be at once apparent that "by the absorption into the blood of the effete products of constipation, whose elimination becomes imperative upon the skin, numerous symptoms must follow, of which the cerebral are mostly predominant. Headache, vertigo, stupor, etc., with a degree of mental depression or hypochondria commensurate, and sometimes resulting in melancholy." If now we shall pass in review the causes above enumerated as to constipation, we must arrive at the conclusion in the ultimate, that they all relate to nutrition either directly or indirectly, for as all muscular action and all healthful nerve force is dependent upon nutrition, the force of the above becomes all the more apparent. When the acid contents of the stomach are poured into the duodenum, and meet with a gush of alkaline bile, a copious cheesy precipitate is formed which clings to the wall of the intestine. With the bile acids the pepsin is mechanically carried down, thus is peptic digestion of the gastric contents stopped. By thus checking the action of the gastric ferment the bile prepares the chyme for the action of the pancreatic juice, acting first as a stimulus, exciting the muscles of the intestine to increased action, thereby aiding in absorption and promoting the forward movement of food. The bile likewise adds to the ingesta an abundant supply of fluid and mucous, much of which passes along the intestine to moisten and lubricate the fæces, and facilitates its evacuation. The bile also gives to the membrane saturated with it the peculiar property of allowing an emulsion of fat to pass through it.

Turning our attention to the pancreas we find its juice of all digestive fluids the most general solvent, acting upon the three great classes of food stuffs. It changes proteids into peptones. Emulsifies fat and converts starch into sugar. The same may be said of the intestinal juice. Therefore it will not require further argument to admit that if all these functions beginning with the stomach and ending with the intestinal glands are performed in a normal and regular manner, constipation becomes an impossibility, short of obstruction or disease. It is only their alteration or abnormality that can produce it. What then becomes the measure of this normal process whereby bile is poured into the intestine and each function is accurately and rhythmically performed? I answer, "the food." This being beautifully exemplified in those animals known as the carnivora, which suffer from constipation, and the herbivora which do not. Those animals, as man, the dog, etc., forming an intermediate class in whom constipation is common. It is my personal and firm opinion that the human race suffers greatly from constipation from one great reason or cause, viz.: The concentration of food! Let us take bread, for example. It is a well-known fact that bran is laxative. When rabbits are fed on white bread they soon die from constipation, but if horn shavings (which are absolutely indigestible for them) are mixed with the bread to give bulk to the fæces, they have sufficient passages and thrive. The natives of Ceylon know this fact, consequently they mix with their rice, chopped straw and thereby avoid becoming constipated. To be properly nourished means introducing within the system of *first*, the inorganic substances, such as water; the phosphates, chlorides, carbonates, sulphates, etc. They enter the body either alone or in combination with the other two classes. They are not oxidized or split up within the system to enter into

the chemical formation of other compounds, but are united mechanically with the proteid group, in fact, the whole action is, as it were, mechanical.

Secondly. We have such substances as owe their chemical combination to carbon, hydrogen, and oxygen only, as fat, sugar, and starch. These substances are oxidized or split up within the system yielding heat, energy, lubrication and rotundity only, which are finally eliminated from the body as carbon dioxide and water.

Thirdly. We have substances made up by carbon, hydrogen, nitrogen, oxygen and sulphur. The common representatives of this group are called proteids, albuminous parts of milk, eggs, meats of all kinds which chemically and histologically include fish, lobsters, crabs, turtles, oysters, clams, etc., and all poultry and game, also the albuminous parts of plant life, vegetable proteid. Normally transferred their excrementitious products are urea, uric acid, kreatinine, carbon, dioxide and water.

It will therefore be at once plain that a diet of Class 3 will leave little or no residue of excrementitious matter within the intestine, being nearly all absorbed and eliminated by way of the kidneys and lungs. This brings us back to the fact that carnivorous animals, whose whole diet is made up of Class III by reason of a lack of residue are constipated and leads us to search for an explanation of why herbivorous animals are rarely or never constipated. Here we have starch, sugar, water, etc., and again we find that the starch by being converted into sugar and the sugar burned, leaves little or no residue. Wherein, then, comes the great mass of faeces in those animals which feed on the vegetable kingdom? And we are forced to the conclusion that it must be cellulose—a waste product, so to speak, the skeleton, if you please, of all the vegetable kingdom. It is this therefore that gives bulk to the faeces; it is this that gives the digestive tract its stimulation, causing the bile to flow, and the intestines to rhythmically contract. Cellulose, the great intestinal stimulant, chologogue, tonic and cathartic. Take it away and you remove in effect what the hook worm takes, in fact, for ultimately, it is nutrition that suffers. But I have not arrived at these conclusions hastily neither without proper study. I have taken dogs and fed them exclusively on meat, and witnessed the result, viz., always constipation! I have fed a dog exclusively on concentrated food, white bread, etc., and witnessed a degree of constipation pitiable to behold. Then I have added cellulose as I found it in the bran of the wheat and have given my dog all degrees of relief, varying in small amounts to one evacuation every five to seven days, to a soluble evacuation oft repeated and perfect health. I have accomplished the same with men. I treat constipation in no other way and I treat it successfully. I know that skillful men have said that the removal of the bran from the flour does no harm. I know that other skillful men have said that they can prepare a substitute for the bran. I know that both have said that concentrated food is best; but I deny it all. Nature will prepare the best food for man and she will do it successfully. I am not here speaking of infant feeding, neither the feeding in diseased conditions. In conclusion, therefore, let me remind the physician that if nature is holding up to man the great panacea for constipation, if chemistry reveals it, if experimentation proves it, and if observers behold it, it is to us, therefore, a duty, to rescue from a nutritive thralldom the tens of thousands of constipated sufferers of the North, whose fermentative doom is as real and whose nutritive disaster as impending as a like

number of tropical inhabitants, whose stature is dwarfed, mentally and physically, and whose anaemia is severe in type. Let us return to the tradition of our fathers in the former and keep the bran in the bread, while in the latter we chase out the invading parasite by appropriate remedies, and in both behold a return to health and vigor, the keyboard to all progress.

THE PROBLEM OF INFANT FEEDING.

BY A. M. LEONARD, M.D.

RAISING babies by the bottle is like hatching chickens in an incubator. The hen and the human mother seem to have no especial trouble when they are employed, but it becomes a complicated problem when blundering deficient man steps in. There is no way known yet of producing a perfect substitute for woman's milk; for example, we can mix a food that will contain enough fat and sugar to maintain the body heat, and sufficient protein to allow of an increase of animal cells, which must contain milk, as curdling is necessary to develop the mechanical function of digestion, for young animals require this factor. If cow's milk is diluted to produce the amount of proteid or curd to suit the infant's digestion, it will not receive nourishment enough to cause gain in weight, all the food ingredients being used to furnish heat, and when sugar is added in sufficient quantity to this diluted milk, the infant will gain in weight, but if the food is less than half milk the infant will not get as much proteid as it gets in mother's milk, while the amount of fat in diluted plain milk is too low. Sugar can take its place in furnishing heat, but Lecithin, an important ingredient of the brain and nerves, is found dissolved in the fat, and a baby needs this element, as its nervous system is undeveloped at birth. Human milk is rich in lecithin, but unfortunately, this is not plentiful in cow's milk for the calf is born with a fully-developed nervous system and hence does not require it. As the lecithin is dissolved in the fat, in making the proportions of fat in diluted cow's milk equal to that in woman's milk, more than merely heat-producing food is accomplished.

It is important in actual practice to get at some simple and accurate method of accomplishing such a result; for this purpose, have pure, clean milk delivered in a quart bottle, and set it on ice or in cold water until the cream rises, by keeping it cool, the separation of cream is promoted, and at the same time bacterial growth retarded. It is generally known that in mixed milks, the quantities of fat and proteids are very nearly equal, and hence, it is always safer to use the mixed milk from a herd of cows, from this standard of purity and uniformity. If the whole milk contains 3 per cent. butter fat, it will likewise contain about 3 per cent. proteid; if 4 per cent. butter fat, about 4 per cent. proteid. The proteid practically does not rise above 4 per cent. in richer milks, such as those containing $4\frac{1}{2}$ or 5 per cent. butter fat; thus, if we know the butter fat in whole milk, we can tell closely the strength of the proteid, while in creams there is practically the same amount of proteid as found in the whole milk. In any quart bottle of milk on which the cream has risen, certain layers of the top milk will contain a very constant ratio between the fats and proteids, and by removing these layers we get certain nutritive values at various depths from the top.

To utilize this idea Chapin has devised a dipper which

holds an ounce, which can be lowered various depths in a bottle of milk; he states that it will be seen that the top 9 ounces will contain three times as much fat as proteids, and the top 16 ounces about twice as much fat as proteids, so for healthy infants under three months, dip off the top nine ounces, and mix in a pitcher or bowl. The top ounce must be removed with a teaspoon and placed in the dipper for measurement, as putting the dipper in at once would cause the bottle to overflow; experiments show that inserting the dipper into the bottle will not mix the cream with the underlying milk, as might be expected. For infants under three months, mix one part of this 9-ounce top-milk with from three to seven parts of diluent, and add one part of sugar to twenty parts of food to bring this element up to the right proportion. Use a teaspoon, tablespoon, or the dipper as a measure. Two level tablespoonfuls of granulated sugar or three of milk sugar equal about one ounce; the dipper scantily filled with granulated sugar, or heaped full with sugar, will stand for an ounce. Give from 2 to 4 ounces of this feeding mixture every two or three hours. For infants over three months, remove the top sixteen ounces from a quart bottle and mix; use one part of this 16-ounce top-milk with from one to four parts of diluent, and add one part of sugar to from twenty-five parts of food; give from 4 to 8 ounces of this feeding mixture every three hours. The problem of the best diluent has received more attention from pediatricians than any other question in infant feeding. Chapin advocates a digested or dextrinized gruel as a diluent, for several reasons; when cow's milk is diluted with water to suit the infant's digestion, the amount of proteid, or cell-building food, is reduced below that usually found in breast milk. When a digested gruel is used as a diluent, the amount of proteid received by the infant is increased, and, at the same time, the attenuation and digestion of the proteids (curd) of cow's milk is rendered easier. The starch of the gruel, being rendered soluble, is not liable to fermentation in the intestinal canal. Mother's milk contains a larger proportion of lactalbumin, or albumin in an easily soluble form, than cow's milk, and the dilution of the latter lessens still more this valuable ingredient. When food is taken into the human stomach a quickly-soluble portion greatly enhances the vigor of digestion. The soluble gruel thus, to a certain extent, makes up for the deficiency of lactalbumin in the diluted cow's milk. The digested gruels are made by boiling wheat, barley, oatmeal, or rice until a thick gruel is formed. A heaped tablespoonful of flour, or twice as much of the flaked cereal, is added to the pint of water and boiled for half an hour. If a double boiler is used there will be no danger of burning the gruel. After thus cooking, the boiler is placed in cold water, and, when the gruel is cool enough, add.

The Swedes have an invention for purifying milk mechanically. This is described by Diffloth as follows: The milk is strained through two wire strainers, holding between them a flat, round, small sheet of cotton, which thrown away and replaced by a fresh disc of cotton each time. In eight months of tests with this cotton filter his inoculation of animals with the milk never caused disease, and the milk thus filtered could be kept for days without souring. Diffloth considers the results of these tests as very remarkable in regard to the preservation of the chemical composition and of the

digestibility of the milk, but as the milk was obtained from a model dairy they are not especially conclusive in respect to the microbes. Centrifugation has no effect on pathogenic germs in milk, or is liable to favor their proliferation; stock raisers have found it necessary to pasteurize "skim milk" from the creameries before feeding it to their pigs, as it is much harder to preserve than "skim milk" from natural cream rising. Centrifugation also interferes with what Diffloth calls the "stereochemistry" of the milk, that is, the molecular arrangement of its constituents.

In clinical study of Laboratory Milk as a substitute in infant feeding, by Starr, he states that laboratory milk being prescribed, it is possible for the physician to supply an artificial food identical in chemical composition with normal human milk, and at the same time to vary at will and accurately the percentage of fat, sugar, and proteids, to meet the demands of each infant's digestive powers and developmental requirements. The best laboratory milk that science has yet devised does not bear this theory out; for example, in thirty-five cases the results of this feeding were unsatisfactory, and in sixteen partially satisfactory. Three healthy infants did well upon the food. The trouble seems to be that in its composition all the fat is removed by a separator, and the food as prepared for the infant is a re-combination of this fat and an alkaline solution of the proteids and sugar; the natural emulsion seems to be destroyed, lessening the digestibility of the proteids and leading to conditions either of malnutrition or to an irritative diarrhea with the expulsion of the undigested proteids in the form of compact curds, despite changes in the proportion of the proteids. The cream, sugar of milk, and water mixture made carefully at home constitutes a modified milk, with a basis of unseparated milk or a natural emulsion, containing fat, proteids, sugar and salts. Under this physical condition the proteids are much more easily digested, so that a badly nourished child of ten months, in whom laboratory milk-percentage cannot be forced higher than 1.50 proteids, will easily digest and grow strong upon a domestic mixture containing 2.97 proteids. The milk and cream from a dairy may vary slightly in chemical composition from day to day, but this variation is a minor detail, and of questionable importance when compared with the separator's destruction of the physical properties of the basal milk. Do not sacrifice everything to chemical accuracy, is Starr's conclusion; and it is a very wise one. "Milk whey" is recommended by many pediatricists; it is made in this way: Thirty ounces of good fresh milk are placed in the bottle, and the heat is raised to 104° F.; add 2 teaspoonfuls of essence of rennet and set aside for a few minutes. When curdling has taken place, thoroughly break up the curd by stirring and shaking up the bottle; then strain through fine muslin or a colander. Prepared in this way, with or without an addition of 2 or 3 drachms of milk-sugar to the pint, it makes a useful food for newly-born infants artificially fed, or for infants who suffer from chronic vomiting or with liquid, green and curdy stools. They often gain weight and are more comfortable than when taking diluted milk. It may be convenient to give dyspeptic infants whey at first, or even dilute the whey with a solution of maltose or barley-water as such infants cannot always digest as much as 2 per cent. of fat in their food. As they improve, add milk to the whey, or "top milk," as their digestive powers gain strength. It is

always well to add a grain of bicarbonate of soda to render the mixtures neutral or alkaline.

Eastes examined one hundred and eighty-six milks, tubercle bacilli were present in eleven, and doubtful in two others. One was doubtful because only one bacillus, morphologically correct, was found, the other because of the right color; the beading was not apparent in any except one, and in that only imperfectly. In forty-seven there was pus, and muco-pus was present in seventy-seven. Both of these objectionable features were absent in fifty-one cases, and the question was undecided in the other eleven. Blood was noted in twenty-four samples, absent in seventy-seven, and probably absent in eighty-five. Streptococci were found in one hundred and six cases, absent in fifty-three, and undetermined in twenty-seven; while colostrum corpuscles were detected in sixteen specimens. The percentages in the mixed work out as follows: 5.3 per cent. contained tubercle bacilli, 30 per cent. contained pus, and 48.7 per cent. muco-pus, these varieties being therefore present in 78.7 per cent. of all mixed milks examined. It was absent in only 15 per cent., and doubtful in the other 6.3 per cent. Streptococci were found in 75.2 per cent. of the samples, absent in 15 per cent., and doubtful in the remaining 9.8 per cent. Milk containing pus or muco-pus and streptococci is unfit for human consumption. Milk derived from pasture-fed cows is less likely to be contaminated than that from cows which are stall-fed. The condition of mixed milk should be made more widely known and the conscience of the farmer aroused, so that he may isolate cows suffering from inflamed udders, and not permit their milk to be mixed with that of healthy animals.

There must be a gathered knowledge of the principles of nutrition, especially as they apply to infancy; the practitioner will know what is essential to the future welfare of a given infant, and order food that will suit its condition, as varied in character as the drugs he gives. Growth is cell division, with a specialization of cells, and hence during the period of its rapid growth the infant urgently needs a sufficient supply of cell-building food—or protein; while the body heat is maintained by the combustion of the fat and sugar consumed, these factors cannot be converted into proteid, or animal cells. Any excess of fat or sugar above the quantity required to maintain body heat is stored up as fat in the infant. Proteid can also be used as fuel, and if there is not enough fat and sugar in the food to furnish heat, the proteid will be burned up, and there will be no gain in weight or increase in strength. Should the quantity of proteid in the food be too low, while there is more fat and sugar than is consumed, the baby will gain in weight and be fat, but anemic; and these babies show little resistance to disease. It has been proved by experiments on the lower animals that the vitality and future welfare of a young animal depend on a liberal supply of proteid while it is growing; and the size of the vital organs, strength of bone, and quantity of blood are greater in animals receiving a liberal supply of proteid. Nature varies the milk intended as the food for young animals with the species, but they all contain fat, proteids, sugar and mineral matter, in different proportions. The animals growing the fastest require the most proteid, and the milk of such animals is richest in the proteids. A human child grows slowly as compared with animals that attain full development within a year or two of birth, such as calves, and we ac-

cordingly find that woman's milk contains a smaller quantity of proteid than cow's milk. The usual method of feeding infants is to make up from cow's milk a mixture that contains the same quantities of fat, proteids, and sugar as is found in human milk of medium richness; but many young babies have difficulty in digesting such a mixture, and the proteids cause the principal trouble; nor is this to be wondered at, since the milk of each species, beside adding nutrition, develop the digestive tract; when a young animal is born, it has never used this tract, and accordingly the digestive process is set up gradually. The colostrum promotes the movement of the bowels, and its ingredients can be absorbed with little digestive effort; the mammary gland gradually changes its output into milk, and the flow of the digestive juices increases. Milk curds in the stomach, the object of this being to develop the mechanical function of the digestive tract; for if milk were all soluble, nothing but absorption would be required, and later, when solid food is required the stomach would be unable to take care of it.

The importance of a pure milk supply is shown by Kober, who reports 330 outbreaks of infectious diseases spread through the milk supply; the number includes 195 epidemics of typhoid fever, in 148 of which the disease prevailed at the farm or dairy. In 99 scarlet fever epidemics, 68 showed cases of this disease at the dairy or milk farm; while of the 36 diphtheria outbreaks, 13 showed cases at the dairy farm. Whey is advised by many authorities as a diluent of cream, modifying cow's milk so that its proportions of caseinogen and whey proteids will closely correspond to human milk; the best temperature for destroying the rennet enzyme in whey being 65.5° C. Whey or whey mixtures should not be heated above 69.3°, to avoid the coagulation of whey proteids. Whey-cream mixtures prepared on this basis were found to contain from .25 per cent. to .90 per cent. whey proteids; caseinogen, .25 per cent.; fats, 1 per cent. to 4 per cent., and milk-sugar 4 per cent. to 7 per cent. The emulsion of fat in whey, barley-water, gravity-cream, and centrifugal cream mixtures have been demonstrated as the same macro- and microscopically.

Chapin divides milks into two great classes: 1st. Those that form hard, solid curds with rennet—cow's and goat's milk; 2nd. Those that form soft, flaky curds with rennet—woman's, mare's and ass's milk. Diluting with wheat or barley gruel in which the starch has been digested breaks up the curds; this digested gruel is made by boiling a heaped tablespoonful of flour with a pint of water, cooling, and adding a solution of diastase, that can be made at home from malted barley grains or from diastase; the curds of milk with a digested gruel diluent passed through a sieve having 900 meshes to the square inch; those with water diluent remained on the sieve. Chapin advises to have milk bottled and cooled at the dairy; then dip off the top, 9 to 16 ounces, into a pitcher or bowl. Here fat and proteids are in about the same ratio as in woman's milk. Prepare the digested gruel. Make the infant's food one-eighth to one-third of 9 ounces top milk, or one-eighth to two-thirds of 16 ounces top milk, the balance digested gruel, adding 1 part sugar to 20 or 25 parts food. Accurate percentages are not needed by this method, as nearly the same percentage results will be attained with any milk, rich milk will be diluted more, poor milk less; and each additional

ounce removed from milk bottles reduces fat in top milk 5 per cent. to 1 per cent., cutting down the fat in infant's food $\frac{1}{4}$ to $\frac{1}{2}$ per cent., depending on the dilution. The important point is to procure first strictly clean, fresh cow's milk, and then to dilute it properly.

In so-called dyspeptic infant diarrhea, if milk feeding is continued a virulent infection will follow; but in the great majority of cases the streptococcus and colon bacillus play an unimportant part at the commencement of the illness. No milk should be allowed until the stools approximate the normal. The milk substitute often found most valuable is a cereal water, such as barley-water or rice-water; take baked barley flour, two tablespoonfuls, water one pint; boil for thirty minutes, strain, and water added so that there is one pint when the cooking is over. A good mixture is 4 or 5 ounces of barley-water and 1 or 2 ounces of broth-beef, mutton, or chicken. Two tablespoonfuls of beef juice added to the cereal water, often makes a suitable change. Using carbohydrates the nature of the intestinal contents is changed from one of putrefaction to fermentation, which does not furnish a favorable soil for the growth of micro-organisms. It is impossible to give a stronger barley-water than two tablespoonfuls to a pint of water for any length of time; twice this amount may be taken if the cereal is dextrinized. Four tablespoonfuls of barley flour to a pint of water, give a food strength of approximately: 14 fat, 6 proteid, and 4 soluble carbohydrates.

As it is well known that millions of germs are swallowed daily without ill effect, it is self-evident that there must be some additional factor present when milk produces disease, such as extreme youth, for the infantile resistance is very low, or lowered vitality from any cause is an important factor. In such states, saprophytes, otherwise harmless, become active in disease production. While there is relationship between the degree or kind of infection and certain bacteria, yet no single organism is responsible for the alimentary infections in infancy. Certain bacteria produce only local irritation, others a considerable degree of toxemia and others intense toxemia with severe local lesions in the mucosa.

As to drugs calomel should be preferred where there is vomiting, and when the case is not particularly urgent, 1/20 to 1/10 grain can be prescribed at hour intervals, but castor oil is better in the acute septic cases with infrequent stools and without stomach involvement, in which is needed a prompt washing out of the small intestine. Bismuth subnitrate in doses of at least 10 grains every one or two of the waking hours, regardless of the age of the patient; to be of service must produce black stools, for if bismuth passes through the bowel unchanged, no influence will be exerted upon the contents of the intestinal tract. Precipitated sulphur in 1 grain powder may be given with each dose of the bismuth for this effect. The bismuth should be continued in large doses until the child is ready for milk, and then the dosage should be diminished one-half and continued until milk feeding is possible. The indications for opium are pain, tenesmus and frequent stools, while the cases that are benefited by irrigation are those that have a moderate number of green mucous stools with or without blood, but too frequent irrigation is to be condemned.

Papain possesses antiseptic digestive powers while also non-irritative and harmless, being derived from the

tropical plant carica papaya, indigenous in Brazil; it dissolves albumin and fibrin, and has the advantage over pepsin of activity in neutral and alkaline liquids as well as in acid, possessing peptonizing power in the intestine. Golinger has used it largely in intestinal catarrh in infants and young children with good results. As a rule, he ordered one and a half grains three times daily for nursing infants, each dose followed fifteen minutes later with oatmeal gruel or diluted cow's milk, while for children over one year old it is better to make the dose 3 to 4 grains, while Joachim gives the following experience with Tannopine: (1) It is completely innocuous and can be administered without risk to the smallest infants in doses of 5 to 7 grains four times daily, and to older children and adults in doses 7 to 15 grains several times daily, because decomposition into its two constituents evidently take places very slowly in the intestinal canal. (2) It is an efficient medicament in all forms of enteritis, its value being doubtful only in the tuberculous form. (3) It is advisable to continue the use of the drug in small doses for a few days after the bowels appear to have regained their normal function.

For acute gastrointestinal infection in infants Kerley gives at the onset 1 grain of calomel in divided doses of one-sixth of a grain every thirty minutes; should vomiting be troublesome he advises 1/30 to 1/40 of a grain every fifteen minutes until the desired amount has been given. The diet consists of barley-water, the barley being cooked three hours; wine whey ($\frac{1}{2}$ an ounce of sherry wine to 10 ounces of whey); liquid peptonoids, 1 drachm every three hours; weak albumin water (white of egg to a pint of boiled water); beef juice, diluted, 1 part to 24 of boiled water. The following prescription, or some modification of it, is ordered: (Kerley):

\mathcal{R} Bismuth Subnitrate Water, enough to make 5j
(Squibb) grs. xij to xx Aromatic Tincture of Rhu-
Bismuth Salicylate gr. j. barb.mj to ij

This is given hourly (12 to 20 grains of bismuth to a child one year old).

In the renal complications of the acute infantile diarrheas aside from cholera infantum, it is probable that more or less marked degenerative changes occur in many cases due to the action of bacteria or of toxins, almost always to the latter, while inflammatory changes are uncommon. As the result albumin and renal elements may be found in the urine; albuminuria occurring in about 15 per cent. of all cases. The sediment contains casts, usually hyaline and fine granular, in about 60 per cent. of the cases in which albuminuria is present; but the presence of albumin and casts does not justify the term "nephritis," for nephritis is a very unusual complication of the acute diarrheal diseases in infants. The occurrence of albumin and renal elements in the urine is not dependent upon any other symptom or combination of symptoms, and it is not a sign for bad prognosis. It is probable that more marked pathological changes, possibly somewhat different in their nature, occur in cholera infantum, and that the resultant changes in the urine are also more marked; probably, however, they are of greater prognostic importance.

There exists a popular impression that after the first year is past a child can eat almost any food, but here the physician should not relax his vigilance, for such ideas are very erroneous and the majority of infants are given solid food too early and in too large quantities;

most of the attacks of indigestion during the second year being directly traceable to such mistakes. The diet of a healthy child during the second year should consist of milk, some farinaceous food, bread, a small amount of animal food, such as beef or mutton, beef juice, eggs, and fruit, for milk should be still the basis of the diet, and there are some infants for whom no modification of the milk is necessary, as they are able to digest without difficulty that containing 4 per cent. proteids, but the great majority of infants do better if the proteids are kept at 3 or 3.5 per cent. during the first half of the second year, as Holt points out, for if the fat is 4 per cent., chronic constipation, usually so troublesome at this time, may often be avoided. The child being now able to take a considerable proportion of its carbohydrates in the form of starch, it is unnecessary to continue the large quantity of milk sugar given during the first year, and in many cases the sugar may be omitted; but where starch-digestion is so feeble that only a small quantity of farinaceous food can be allowed, it may be necessary to continue the milk-sugar during the entire second year. The formulae most generally useful during this period are (Holt):

At 12 months: Fat, 4.0%; sugar, 5.0%; proteids, 3.0%

At 15 months: Fat, 4.0%; sugar, 5.0%; proteids, 3.5%

At 18 months: Fat 3.5%; sugar, 4.3%; proteids, 4.0% (i. e., plain milk).

Approximate these formulas by using the following proportions for one feeding of ten ounces:

Milk, 6 oz.: cream (16%), 1 oz.; water, 3 oz.; sugar, 2 even teaspoonfuls.

Milk, 8 oz.: cream (16%), $\frac{1}{2}$ oz.; water, $1\frac{1}{2}$ oz.; sugar, 1 even teaspoonful.

The best way to add farinaceous food in the form of a gruel made of one of the cereals or farinaceous foods: the latter being partly dextrinized, require but ten to fifteen minutes cooking; should prepared flours be used, one even tablespoonful should be added to one pint of water, to make a gruel of about the proper strength. A gruel or jelly made from oats, wheat, or barley is excellent, while, if the grains are used, they should first be soaked for six hours or over night in water which is thrown away, and then cooked for from four to six hours and strained through muslin. Two tablespoonfuls of the grains to one quart of water, cooked down to one pint, give a jelly of about the desired consistency; salt always being added. During the first half of the second year children require from forty to fifty ounces of fluid food daily, during the second half of the year from forty-five ounces. This quantity should be given in five feedings; four of these being of equal size, one—usually the midday feeding, which is given in connection with the meat or meat juice—being smaller. Beef juice may be given as during the latter part of the first year, the amount allowed being from one to three ounces daily. After the child is eighteen months old if most of the teeth are present, rare scraped beef or mutton may be given in place of the beef juice, but not more than a tablespoonful should be allowed daily. After the eighteenth month, a soft-boiled fresh egg may also be given in place of the meat or meat juice, once or twice a week. Stale bread dried in the oven, or a piece of zwieback may be given, usually with the midday meal, after the child has most of its teeth; while fruit is a part of the diet which is often neglected; orange juice may be begun as early as the fifteenth month; from half an ounce to two ounces daily, while

later one or two tablespoonfuls of baked apple or two or three stewed prunes may be added. Both should be cooked until they are very soft. The baked apple should be given without sugar, and the prunes should be put through a sieve to remove skins. The best time for giving fruit is about an hour before one of the milk meals.

Holt says that the daily diet for a child of eighteen months should be arranged somewhat as follows: The first, second, and fifth meals should each consist of ten or twelve ounces of milk prepared with gruel, as above described, the fruit being an hour before the second feeding. The third meal should consist of six or seven ounces of the milk and gruel, with beef juice, scraped beef, or egg, and dried bread. The form of farinaceous food may be varied from day to day, according to the child's taste. All other food may be advantageously omitted. Water only to be given between meals. The milk for the twenty-four hours is best prepared at one time, while the quantity needed for the different feedings should be put in separate bottles, as during the first year.

CLINICAL EXPERIENCES WITH TYPHOID FEVER.

BY A. N. ULRICH, M.D.

IN the autumn generally typhoid fever is prevalent; why, we do not know, but it is a fact that we are likely to meet many such cases for the next three or four months. In abortive cases of typhoid fever, a very small dose of the germ has been introduced into the system, where it lives but a brief period, possible because the phagocytes in the body are strong and capable, dwarfing the process. Such cases are difficult to diagnose; this is a typical history: a patient is ill for a week, and he has all the appearances of a typhoid fever patient, and one naturally supposes that his fever would go on but his temperature falls, and he soon gets well. In these abortive cases there are no means of putting the diagnosis to the proof by any post-mortem examination and we can only judge by the nature of the symptoms. While the Widal test is often negative this fever is a disease of young people. Typhoid becomes rare after forty years of age. Childhood is not exempt from the disease yet it is most severe at a period between twenty and twenty-five years of age, for it is a fact that about a quarter of the deaths occur in patients at the age of twenty or twenty-five. As people age, they become less susceptible to the action of the bacillus and it is quite certain that those parts of the body which are the seats of selection become wasted in old people; the solitary glands of the intestine, as occurs in other glands in the body, degenerate, with a diminution of their functional activity; but the lymphatic and glandular system in young people is active and vigorous, and hence any disease occurring in the lymphatic and glandular system of the young are apt to be more acute. In studying the duration of typhoid while cases sometimes recover at the end of three weeks, and other cases linger in the wards and elsewhere, where patients remain ill for five, six, seven, nine or ten weeks, but a typical attack, is a twenty-eight day fever. Then if all goes well, and the patient is carefully treated and shielded from all possible complications, the fever leaves and convalescence appears. No method of treatment and no remedies have any effect in aborting the typhoid process. The earliest symptom of typhoid fever is a general feeling of malaise; the patient does not feel

well; he does not know what is the matter with him, but he is unfit for his work, languid and chilly, his head aches, and a disagreeable taste in his mouth, which lasts for some time, and this condition is accompanied by fever. Here is where the patient does himself harm, for he thinks very often that he has caught cold, or that his liver is out of order, or that he requires stimulation; consequently, he proceeds to take an aperient to act upon the liver, which is not a wise thing to do; or else he thinks he is low and weak, so he proceeds to feed up—takes more food and more wine, and tries to recover his health by stuffing. Thinking perhaps that he is merely out of sorts, he proceeds to take more exercise; all of these methods are unfortunate, especially the practice of taking an aperient. As a matter of routine you always should suspect the possibility of typhoid fever in any case of fever for which you cannot readily find a cause. The thermometer should prevent mistakes in the early diagnosis of enteric fever; I do not think much of the Widal test. The danger of any aperient and the danger of fatigue is apparent.

Here is another point in the start of typhoid: suppose a patient comes down with it a long way from home—it attacks the stranger and the traveler—especially in many parts of the continent, in Mexico, and in summer resorts where the drainage is bad and the water supply is more than doubtful. If the diagnosis of typhoid fever is made the first impulse of the patient when he realizes that he is in for a severe illness is to go home; and he naturally wishes to return to his family. It is most unwise if he proceeds to go home. This means a journey of perhaps several days and nights, and then this unfortunate patient, who is already the subject of typhoid fever, delivers himself into the hands of his family or his friends a complete wreck, to crawl into bed, exhausted, and having had very improper food; he puts himself into the worst possible position for recovery. Put such a patient in to bed wherever he is and keep him there. When consulted about moving a typhoid patient, always say, "Let him stay where he is;" do not run the great risk involved in bringing him home. That will often save life, and it has often done so, whereas other procedure has again and again proved fatal. In any acute severe illness, the best plan is always to get your patient into the best room you can secure for him; no room is too good to be sick in; the best room in the house, one with a good outlook, plenty of cubic space in it, plenty of doors and windows, and with all arrangements that lend themselves for nursing. It is better, if possible, to have two rooms, one for the day and one for the night; have two beds for your fever patient, one for the day and one for the night. The patient is readily slipped from one to the other, and two good nurses are really required; a severe illness is always expensive, but that is a little moment if you can save life. The Eberth bacilli make their special habitat in the intestines, yet they will ultimately go all over the body, and be found in every solid and liquid, yet the specific selection is the solitary and agminated glands of the small intestine, from the lower part of the duodenum down to ileo-cecal valve, the process increasing downward. The process being one of progressive swelling, softening, ulceration, and necrosis in the solitary and agminated glands, care in prescribing the food for patients suffering from this disease is all important. The mucous membrane being necrosed, there is but a thin partition between the intestine and the peritoneal cavity, the great risk being that these ulcers shall

rupture the peritoneal coat. The best diets are milk, thin broths, sometimes a little farinaceous food, such as arrow-root, but not much, the chief articles of diet being milk and animal broth, with no solid food at all. Milk is a strong food; a pint of milk is equal to a mutton chop, and therefore do not prescribe undue supplies of milk for a patient, if he does not require it. The diet for all febrile states is mainly milk and beef tea; in fever the salivary glands, the pancreas, and other glands which take part especially in the digestion of starchy food do not perform their functions properly; therefore the digestion of starchy food becomes difficult; still you can use a little of it. In using milk remember one precaution; milk, during the process of digestion, becomes converted into curds, which, passing down the intestines become hard or even bulky, irritating the ulcerated surfaces. To avoid this, add to the milk one-fourth, and sometimes one-half of lime water, which prevents the curds becoming large, and allows the milk to curdle slowly into small granular particles, and to be much better digested, which partly checks the tendency to looseness of the bowels. Beef-tea is rather more apt to irritate the bowels than mutton-tea or chicken-tea;—hence any animal broth is preferable if there is much diarrhoea. In constipation all through the attack use beef tea or any other animal broth, quenching the thirst freely with pure lukewarm water. I believe that no fruit should be allowed in typhoid fever, despite the fact that this precaution is not laid down in many text books. Some authorities speak of giving the patient lime-juice, or say that grapes are innocent things, taking care to remove the skin and the stones, but I believe grapes are not innocent, for the pulp of grapes is very bad, and you cannot trust your fever patient to masticate it sufficiently to render it harmless. Again, fruit juices often have a disturbing effect upon the bowels possibly turning the scale by increasing the diarrhoea. I do not believe even in lemonade. The patient will get very sick of his dietary, but you cannot help that. Granulated malt, diluted with water or with milk, makes a very palatable and nourishing food for the typhoid patient; it is said that Eberth's bacillus flourishes luxuriantly in milk, but that it will not flourish in malt extracts; there may be something in this reasoning.

The typhoid headache may be very troublesome, but it may be relieved by a bag of ice applied to the forehead or sometimes by very hot sponging; depend on the patient's sensations; headaches as are not relieved by cold are often benefited by heat. For the restlessness and the bad nights that may occur during the first two weeks of the fever it is a poor rule to employ opiates; doses of bromide of potassium or of *canabis indica* in proper doses or combined in the form of bromidia, is suitable for the restlessness and sleeplessness. The state of the mouth varies; it may be clammy, crusted, and sometimes exceedingly foul; swab it out with some antiseptic, such as a strong solution of borax. In this manner you may get rid of a great deal of foul matter containing the bacillus, which goes on poisoning the system, and avoid the possibility of otitis from infection along the Eustachian tube.

Horton-Smith believes that the urine in typhoid should receive more attention than is commonly given and should be constantly sterilized, since it is probably more active in spreading the disease than are the feces. The latter are extremely infectious in the earlier stages of the disease and until about the third week; but commonly the bacilli rapidly disappear after this period, while ba-

cilli are found in the urine in about one-half of the cases, usually in pure cultures, and they are likely to remain for weeks or often months, and are usually present in enormous numbers. He advises that urotropin be given in doses of 10 gr. three times a day in all cases in which the urine is shown by bacteriologic examination to contain bacilli. The simpler plan of sterilization of the voided urine is the only one to be used. Internal antiseptics are unnecessary and harmful.

Diarrhea sometimes is a severe and dangerous symptom, but as a rule, it is safe to leave the patient alone, provided that there are not more than three or four stools a day; if they reach five or more it is well to restrain them by giving a small enema of starch containing a little laudanum, ten to fifteen minims, in the rectum, or to give ten to fifteen minims of laudanum by the mouth at bedtime. There is no general drug for typhoid; for the infection dilute hydrochloric acid, in doses of ten to twelve minims every four or six hours, with a little peppermint water, is excellent, to which in the third week of the disease add half a grain of hydrochlorate of quinine. Dilute sulphuric acid may be used in the same way, especially if diarrhea is present. Bismuth, especially the carbonate or the salicylate, in doses of ten to fifteen grains three or four times daily, is often indicated. Feed sufficiently, but don't overfeed; the object is to maintain the strength of the heart, to help the patient through his troubles, which increase as the disease progresses; the worst thing about typhoid fever is that the patient has to pull through the greatest difficulties and complications at a time when he is least able to do the task. The ulceration increases, and the patient becomes weaker towards the end of the disease, from the 21st to the 25th day; worn out by continued fever, exhausted by diarrhea there is a call for nourishment to keep up the strength of his heart, and to maintain a healthy process in the intestines. Typhoid fever is always a dangerous disease, even under the most favorable circumstances; remember that the strength must be maintained and the heart kept working steadily, gauging the condition of the patient very much by the state of the heart and pulse daily. If the patient becomes weaker, his pulse grows weaker, smaller in volume, less in arterial pressure, and it may become double or dicrotic. When the heart-sounds become enfeebled, and the first one almost inaudible at the base, we have "Stoke's indication for stimulants." Tympanites is a sign of general debility, nervousness and exhaustion, not merely meaning that the intestines are blown up and distended, but that their muscular fibres cannot contract upon their contents, for they are relaxed and powerless. The muscular tone and the nervous tone are both at a low ebb, and this is an indication that the powers of life require some invigoration. This stimulation may easily be secured by alcohol. When these conditions arise if the belly swells and the pulse becomes soft, employ some stimulant, anticipating further signs of weakness coming on, and so help the patient on towards the great ordeal of his illness, at the end of his third week, but don't begin the stimulants before they are needed, for not every case of typhoid fever requires stimulation. Some young patients, smitten with typhoid fever, may go all through their illness without a single tablespoonful of brandy. Other people, again, cannot go through their illness without a very large quantity of stimulants, needing eight, ten, twelve, or even twenty ounces of brandy a day. It is impossible to state how any case is going to turn out. As Duckworth says, "Do not tie your hands and say 'I

never give stimulants in typhoid fever.' " Use what is demanded—that is, what your skill and knowledge tell you is needed, being careful not to overstimulate the patient. It is quite conceivable that under certain circumstances some patient might be benefited by a little good "wine," but be sure that it is good wine; but to call for "wine" in the ordinary sense of the word, not knowing what your patient is going to get is bad policy. Not even champagne is called for; it may be very grateful and the patient likes it, but it is not safe, because it is likely to upset the action of the bowels. Make it a rule then, to use only such alcoholic drugs as brandy or whiskey; begin with a couple of ounces—perhaps less—one, two, three or four, according to circumstances. An average quantity for a bad case would be some three or four ounces; the amount should seldom exceed that, although six or eight may be requisite.

Should the tympanites not be relieved by proper feeding and stimulants, pass a soft rubber tube into the rectum, which will often liberate a quantity of gas and relieve the distention. Turpentine stupes have been recommended; I have never seen any good come from my practice. Charcoal in tablespoonful doses has been advised; it is ineffectual, and lodges as foreign matter in the ulcers. When there is great nervous exhaustion use of full doses of Hoffmann's anodyne and drachm doses of tincture of musk every two hours is good. Hypodermic injections of strychnine are sometimes most useful, and distinctly save life in grave cases. Instead of diarrhea constipation may be a troublesome symptom through the disease; always examine the patient's abdomen and ascertain the condition of the sigmoid flexure. A daily exploration of the belly is one of the greatest indications, and you should ascertain the general distention of it, and therewith the degree of nervous power possessed by the patient. You also want to know whether the spleen continues to be large, or is becoming smaller. Fecal matter in the sigmoid flexure, if retained, are apt to produce sudden accessions of temperature, otherwise not accounted for. Sometimes the patient is apparently going on well, but the temperature is going up; fearing a relapse and further involvement for another three weeks, you will frequently find that this is explained by finding lumps in the sigmoid flexure. Give an enema of gruel, or soap and water, and the patient goes on well. Never give purgatives from above if you can possibly help it. Wash out the bowels from below, and wait for a natural action. Another grave feature is bleeding from the ulcers. There are two periods at which this may occur, which are described respectively as "early" and "late" hemorrhage; hemorrhage when the ulcerations have hardly begun, when the swollen patches become hyperemically congested; or the vessels break, and oozing of small quantities of blood occurs; it is practically of no consequence, and need not be treated. The "late" hemorrhage, occurring about the twenty-first day, when the sloughs are separating from the ulcers, is the most serious. You may find a small hemorrhage—an ounce or so—or there may be a pint or two, or there may be hemorrhage again and again until the patient is blanched, and death may result. That is a most serious and dangerous complication, and when that symptom occurs withhold all milk, even milk and water; give nothing except simple bland fluids, such as beef essence, mutton essence, barley-water, and alum-whey. made by adding to a pint of boiled milk a teaspoonful of powdered alum; strain off the whey and administer that. It is an astringent, and

certainly feeds the patient; keep the bowels perfectly at rest when there is any risk of hemorrhage; you want to stop all peristaltic action if you can; and the best drug for that is opium, "putting a splint on the bowels"; use it freely, and so as not to disturb the stomach; you therefore give it by the rectum. In these cases administer thirty or forty minims of laudanum in an ounce of gruel or thin starch-decoction; it has a marvellous effect in quieting the whole length of the alimentary canal, and puts the patient asleep. Anything that opium cannot do I do not believe any other drug can do. Heart-failure as a symptom you should meet by giving alcohol. If delirium sets in, it is a sign that the patient is starving and is low, and that means a little more food and brandy. Tremors affecting the limbs and the jaw and tympanites commonly occur together, and mean that a little more sustaining food and stimulant are wanted. You may have to increase the stimulants as time goes on. There may be some degree of albuminuria; it is generally symptomatic, but not serious, and will pass off as the patient gets well. There may be excessive temperature—hyperpyrexia. That is a serious symptom. A great many measures have been recommended for overcoming this. A temperature of 104° F. may be looked upon as favorable. I regard such moderate temperatures as helpful, but if the pyrexia increases it will certainly damage the integrity of the several viscera. Anything above 104° means that a cooling-down process is necessary, and then put a cradle on the bed and a sheet over that, so as to allow a current of air to pass over the patient. If the temperature still rises in spite of the cradle, then the patient is sponged with ice-water, which is a powerful reducer of temperature. If that also fails, bags of ice are suspended from the top of the cradle, and a Leiter's cap is put on the head. In the great majority of cases these measures, or some of them, are sufficient. The method of bathing typhoid-fever patients is much in vogue in Germany, but I do not feel that it is necessary.

If followed do as Baruch says: As soon as a patient shows a rectal temperature of 102.5° in the morning and 103° in the evening for three successive days, especially if this be accompanied by headache, dulness, or apathy, he is placed in a full bath at 90°, which is reduced to 80°, with constant friction over the body. In three hours, the temperature still being above 102.5°, he receives another bath five degrees cooler. This is repeated until the temperature of the bath is 75°. If one or more of these baths fail to reduce the rectal temperature two degrees in half an hour, the diagnosis of typhoid fever is almost certain, and the bath treatment is continued. The resistance of the rectal temperature to a bath of 75° for fifteen minutes with friction is an almost certain test of typhoid fever."

Eliot, while insisting on the necessity of absolute rest in bed, quiet, and liquid food until the temperature has remained below 99° F., during the whole twenty-four hours for a week at least, also commends carbolic acid and iodine as the best antiseptics as well as gastric sedatives, relieving nausea and vomiting. These are administered in the following mixture:

R Ac. Carbol. ʒj Tinc. Iodi ʒiij
M. Ft. Mist.—Sig. 4 drops in a wineglassful of water every four hours.

Next to late hemorrhage comes perforation of the ulcerated bowel at some point as a serious complication. This is always a possible danger when there is deep ulceration, and the patient is of feeble constitution and

had been imperfectly nourished during the course of the fever; general peritonitis rapidly sets in, the bacterium coli is set free, and a fatal ending follows. Improper feeding with fruit or crude matters often leads to this untoward result; give opium freely, and to try to secure a limitation to the spread of peritonitis. But such adhesions as form in these conditions generally prove too frail and inadequate to secure a closure of the breach thus made. The bold measures of modern aseptic surgery are little likely to prove of avail, even if they be practised, and the abdomen be opened and washed out. The patient is at lowest ebb, exhausted by prolonged fever, and in the worst possible condition to bear any operative interference; prevention, and not cure, is better.

The return to the normal diet is a puzzling problem always. Wait until the fever has gone for some days, and then gradually mend the diet and give a little slightly solid food, beginning with bread and milk pap, with custard, then pass on to fish, next to very lightly boiled eggs, then to pounded meat, and so on, gradually feeling your way and watching the effect. It is better to be a few days late in mending the diet than five minutes too soon, because, without doubt, relapses have been caused by giving solid food too soon, opening up the ulcers, and liberating new bacilli.

BRIEFS ON GENITO-URINARY SURGERY.

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NEUROSES OF THE PROSTATE.

CONSIDERING the abundant nervous supply of the prostate and its environs, especially its liberal endowment with sympathetic nerve filaments and resultant intimate association with the rectum, bladder, and other viscera, the occurrence of nervous phenomena of various kinds referable directly or indirectly to disturbance of the prostate is not surprising. It is true that many neurotic disturbances which I believe should come properly under the head of neuroses of the prostate originate primarily in demonstrable organic disease, but the clinical fact remains that pronounced nervous disturbance, such as direct or reflex neuralgia, and sometimes considerable psychic disturbance, may persist, constituting the principal source of disquiet long after the primary organic causes have wholly or partially disappeared. The primary condition may be of so little moment that there would be little or nothing to attract the attention of the physician were it not for the disproportionate nervous disturbance that results.

In using the term prostatic neurosis, I am well aware that a certain degree of ambiguity must necessarily enter into the consideration of the subject; but in the present state of our knowledge of disease, from practical clinical experience, and more especially to subserve the purpose of an intelligent therapy, the term seems sufficiently clear and comprehensive.

In considering prostatic neuroses there are several points to be borne in mind, viz.: (1) The physiologic and anatomic analogy between the prostate taken as a whole and the uterus; (2) the relation of the prostate to urination; (3) its sexual function; and, finally, (4) its intimate association with the rectum, anus, seminal vesicles, urethra and bladder.

Neuralgia of prostatic origin, unattended by evidence

of organic disease or at most associated with very slight organic changes, is by no means rare. It is probable that a certain degree of hyperemia exists in the majority of cases of prostatic neuralgia; yet disturbance of the circulation does not seem absolutely essential. Hyperesthesia of the prostate is usually limited to its urethral portion, and is very frequently met with. Hyperesthesia and neuralgia are often associated, the former being the more likely to exist alone.

The causes of prostatic neuralgia and hyperesthesia are:

1. Sexual excesses and masturbation.
2. The gouty or rheumatic diathesis.
3. Traumatism of the prostate, surgical or accidental.
4. Acute or chronic congestion.
5. Acute or chronic infectious inflammation.
6. Urethral disease, notably stricture.
7. Foreign bodies or tumors in the bladder.
8. Psychic disturbance, with attendant mental suggestion incidental to
 - a. Ignorance of sexual physiology and the influence of quack literature.
 - b. Injudicious and perhaps unnecessary treatment of the prostate; or
 - c. The prolonged duration of mental disturbance produced by actual organic disease.

The latter cases are especially liable to be associated with hyperemia. Prostatic catarrh—prostatorrhea—is also a frequent concomitant.

It would be difficult to dissociate the local irritation produced by highly acid urine in gouty and rheumatic patients from the exaggerated general nervous sensibility produced by lithemia. Many cases are found, however, in which neuralgic pain—referable to the perineum, anus, neck of the bladder, and urethra—is experienced by lithemic patients in whom the correction of the irritating acid properties of the urine is not followed by appreciable benefit until alkaline and antilithic remedies have modified the diathesis. I have recently had under observation a gentleman, 45 years of age, who has been for some years annoyed by neuralgic pain of the kind described, associated with intense hyperesthesia of the prostatic urethra. He was particularly annoyed by persistent erections at night, and, irrespective of the reaction of the urine, the act of urination giving him considerable pain. Careful examination of the bladder and the urethra *via* the endoscope, cystoscope, and mechanical exploration revealed no organic condition that would explain his symptoms. There was apparently no disturbance of the kidneys that might cause the condition by reflex irritation. The origin of the difficulty was probably a gouty constitution associated with strictures of large calibre. The latter were operated upon some years ago, with perfect success, save the failure to ameliorate the annoying symptoms described. Similar symptoms are often produced by rectal or anal irritation: a condition that was absent in this case. Neuralgic pain referable to the perineum and vesical neck, perhaps radiating into the testes, is by no means unusual in disease of the lower bowel. This is worthy of remembrance.

Neuralgia of the prostate following operations upon the organ, or operations upon the bladder involving it, is occasionally met with. I recall the case of a young man operated through the perineum for vesical drainage for the cure of obstinate cystitis, in whom the result was perfect, so far as the cystitis was concerned, but the patient has been tormented ever since by ano-perineal,

crural, and testicular neuralgia. There is no condition of the prostate, bladder or rectum that explains the difficulty. In another case, a man operated for large-calibered penile stricture, persistent, deep-seated, intermittent perineal pain, frequent urination, and marked hyperesthesia of the prostatic urethra have existed for some years. Careful exploration fails to detect any condition that would explain the trouble. The urine is normal. Urethrotomy, while effective in curing the stricture, completely failed to relieve the prostatic neuralgia.

Acute and chronic hyperemia of the prostate are sometimes responsible for hyperesthesia and neuralgia of the organ, and in such cases the perturbation of blood supply is really the essential condition. Unfortunately, however, the pain is not only the most prominent feature in the mind of the patient, but it often persists in spite of all measures tending to correct the circulatory disturbance. That a strong psychic element enters into these cases, as, indeed, it does in the majority of cases of genito-urinary disease, is admitted. Psychic disturbance may be the starting-point, not only of vascular disturbance attended with neuralgia and hyperesthesia, but may produce neurotic phenomena independently of perturbation of the circulation. Prolonged and unnecessary treatment of the prostatic urethra is not only likely to produce hyperesthesia of the organ, but also persistent psychic disturbance, possibly hypochondriasis or even melancholia, with or without local pain. Hysteria in the male from this cause is not infrequent.

Psychoses from prostatic irritation are very frequent, but care must be taken to carefully discriminate between cases that are psychic *ab initio* and those in which the psychic element is simply an ingraft upon the symptoms produced by organic disturbance. Acute or chronic inflammation is usually the essential condition, but many cases occur in which, after the inflammation has disappeared, neuralgic pain—referable to the vesical neck and radiating into the perineum, testes, thighs, and rectum—persists in spite of all treatment, often perhaps because of it. Reflex prostatic irritation produced either by vesical or urethral disease is frequent. Urethral and perineal pain associated with stricture or stone in the bladder is a familiar example. Stricture occasionally produces neuralgia referable not only to the prostate, but apparently involving the entire bladder. One of my cases clearly demonstrates this clinical fact. A gentleman, thirty years of age, suffered from pain in the region of the bladder and frequent micturition for six or seven years. He had been operated for stricture some time prior to the beginning of the neuralgic pain and was inclined to attribute his trouble to the urethrotomy. Examination revealed several stricture bands of large calibre that had evidently escaped the original operation. A second urethrotomy was performed with perfect relief of the symptoms. A peculiar feature in this case was severe hypogastric pain whenever the urine was held for several hours. This has completely disappeared since the operation.

The term prostatic hyperesthesia should comprehend the condition of so-called vesical irritability that has been described by some authors as "neuralgia of the vesical neck." The more important and highly sensitive parts involved in the sexual and urinary functions are integral parts of the prostate. The prostatic urethra derives most of its importance (save that incidental to its function as an outlet for the bladder) from certain anatomic and physiologic peculiarities of the prostate proper. The elab-

orate and highly sensitive nervous supply of the prostate is the seat of urinary desire; its nervous supply, by virtue of special nervous filaments supplied chiefly to the caput gallinaginis, is responsible for the voluptuous sensations incidental to coitus.

Hyperesthesia of the prostate manifests itself in two ways: (1) Exaggerated sensibility of the prostatic urethra to the pressure of urine, with resultant frequent micturition. This may be associated with inhibition of the function of the false vesical sphincter, as a consequence of which the urine enters the highly sensitive prostatic urethra at more frequent intervals. The capacity of the bladder itself is probably diminished by reflex irritation of the vesical muscle. A careful consideration of the physiology of micturition readily explains the so-called vesical irritability resulting from prostatic hyperesthesia. (2.) The sexual function of the prostate is likely to be profoundly disturbed by hyperesthesia of the organ, particularly if the caput gallinaginis be involved. Nocturnal pollutions, imperfect erection and premature orgasm, or perhaps complete *impotentia coeundi* may result, these conditions being not always amenable to treatment.

Treatment: Neuroses of prostatic origin constitute a most emphatic indication for attention to genito-urinary hygiene. Careful regulation of diet, attention to the various emunctories, and careful supervision of sexual habits are the keynote of treatment. Remedies for lithemia are often essential. Regulation of the diet, however, is more important in such cases. Tobacco and liquor especially are to be interdicted. Certain sedative remedies are often of great value. The bromides, camphor—or their combination, camphor monobromid—and gelsemium are of especial value, the latter remedy being perhaps most reliable. Ergot is often of great service. Cold Sitz baths and enemata are useful. Careful attention should be paid to the condition of the bowels; strong cathartics should be avoided and mild laxatives given. The local measures of treatment are numerous, but often unsatisfactory. In some cases in which there is a strong psychic element, a cold sound or the psychrophor is serviceable. Should actual organic disease of the prostatic urethra exist, however, such measures may do harm. In some cases the nervous organization of the patient is such that local treatment merely directs his attention to the part and exaggerates his symptoms. In cases where there is disease of the mucous membrane of the prostatic urethra, the judicious application of silver nitrate with the deep urethral syringe or endoscope is of value. Deep urethral injections, however, have probably been productive of more damage in this class of cases than in any other that could be mentioned. Many cases of neuralgia and hyperesthesia of the prostate, in which there primarily existed no pathological change whatever in the deep urethral mucous membrane, are treated so assiduously by deep urethral injections that the erroneous diagnosis of disease of the prostatic urethra is made good by the development of genuine pathologic conditions. It appears very illogical, in cases in which careful local examination and conscientious urinalysis fail to show organic disease, to treat the prostatic urethra by frequent injections of the silver nitrate to cure a posterior urethritis existing only in the mind of the practitioner. The readiness with which the diagnosis of posterior urethritis, which happens to be the prevailing fad, may be made, and the ease with which one may supply himself with the necessary instruments for deep urethral injection, constitute a constant menace to many patients

who have genito-urinary disease, real or imaginary.

In cases in which actual organic disease exists, the first duty of the surgeon is to institute appropriate measures for its removal. While it is best from a psychic standpoint to impress the patient with the radical result expected from the treatment, the surgeon should remember that even after the primary organic difficulty has been cured, the neurosis may remain. The experience derived from the removal of the original cause in reflex neuralgias in other situations has been that the neuralgia frequently persists in spite of a radical operation for the removal of the offending condition. The same clinical observation applies to neuralgia and hyperesthesia of the prostate.

Prostatic massage often gives great relief in the class of cases under consideration. It is especially serviceable in cases attended by hyperemia, with or without prostatorrhea.

Chronic Empyema of the Antrum of Highmore is discussed by P. L. Friedrich (*Deut. Med. Woch.*) who submits the results of his methods of treatment. Excessive foul secretion furnishes the main indication, and means of getting rid of it have necessitated laying open freely the antrum cavity. Friedrich would resect the anterior wall and would, in addition, establish sufficient communication into the nasal cavity on a level with the floor of the antrum. A flap is made which includes the ala nasi close to its base, the incision being about two centimetres long and carried down to the bone. From the middle of this another short incision is carried downward and outward. The flaps are reflected and the intervening soft parts down to the crista are displaced, until this bone is thoroughly exposed. The crista and one square centimetre of the anterior wall close to the floor of the antrum are removed, together with a part of the inferior turbinate bone, if this is in the way. This freely exposes the antrum, which may be readily explored and cleaned out. A tampon is then introduced which leads out through the nose, and the external wound is closed. Healing takes place promptly within a comparatively short space of time. The general experience with antrum abscess is that patients will not early enough submit to operation. That is why the usual operation *via* the canine fossa or the molar alveolus is so often ineffective. Oftentimes, too, there is delay until the frontal sinuses and the ethmoid cells become involved. There is no task more exhaustive or requiring more nerve than that of the surgeon who gouges away necrosed ethmoid cells until he gets within the thickness of a piece of paper of the base of the skull.

A premium for babies has been offered by the mayor of Huddersfield, England, in the shape of a promissory note for one pound, payable a year after birth (if the child lives so long) to be given to the mother of every child born during his year of office. The idea is to prevent the waste of child life by making it worth while for the parents to be careful about their children. This solicitude is quite in keeping with several schemes on this side of the water—insurance in the event of twins, for instance, and the charitable donation of perambulators in order to discourage race suicide.

Hiram Cronk, the sole American survivor of the War of 1812, died at Avon, N. Y., at the age of 105. For nearly forty years past he is reported to have been an inveterate chewer of tobacco and an habitual, though temperate, wine drinker.

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THE SEASON OF OVERDOSAGE.

FROM the highest authority extant we learn that there is "a time for everything." By modern custom now is the usual season of overdosage. The fashion of it swells the heart with desire for the risks—captures the mind with eagerness for the test. The reserves of conscience, if any, have been placated by elastic beliefs that the individual experiment, at least this time again, should venture the expenditures, though involved disabilities will, in many cases, encumber the aftermath of the coveted transports. 'Tis true, the preparatory stage of the disturbing operation will prove rather exacting and exhaustive; but hence all the more evident becomes the pressing need for the recuperative stage presumed to follow drastic drains upon the impressive fund of vitality.

The diversity of domestic inconveniences is skillfully and cheerfully competed against by the anticipative alternatives and welcomed recreations that easily win the contest in view of the alluring "change"—change of customary habit, change of daily diet, the novelty of hired sleeping quarters, the unique panorama of unsorted faces from unwonted places but now flocking together at the ideal Mecca so impressively advertised for presenting, at reasonable financial profits, the approved modish dosages for wearied but ardent seekers for that great summer compound artfully labelled with the simplest sobriquet—REST.

Is there an invoiced formula for whetting contemplation? Its gist is non-technical but comprehensive enough to win the alert bidder for the most available accommodations. The Lord is good always and Providence increasingly profuse in provision to interest the discerning eye and to gratify the questful mind. There are many favored and favorite locations that diversify the open face of Nature—situations where the atmosphere distills the nectar of health; where the real sunshine plenteously smiles; where attracting stars shower their gleams; where gentle Luna invites to joyful love;

where earnest candidates for nerve restoratives and mind cures may safely entrench their hopes of happiness for at least temporary lull from carping care; where hungering appetites shall be voluminously furnished with the best products of the land; where a grand sweep of allopathic largeness may be grasped for recuperation of overdrawn waste of energies—less the meddlesome formalities of an obtrusive quarantine of "do's" and "don't's."

The inventoried schedule comprises arduous "lots and cords" of health-winning devotions, incongruously compressed to the fullest limit of endurance. To deflect the shafts of exhausting temperature of hot days and nights there's the popular cooling respite of lawn tennis and golf; the jolly repose of riding and driving; the fine stomach digestive of wave-rocked sailing and fishing; the quiescent ease of crabbing and gunning; the anti-septic soothe of salt sea baths and blistering beach sand packs; the "innocuous desuetude" of bathing boss billows and swimming and diving; the becalming ease of wheeling and climbing; the complacent relish of feeding and fanning; the dreamy divergent of dressing and dancing; the sedative nervines of night musicales, of scintillating extravaganzas, ballroom hops and coquetting bouts; the languorous vigilance of ogling and vying; the somnolent calm of promenades and porching; the crowning sleep under the weird hypnotism of drunken mosquitoes and barking watch dogs!

Most physicians will concede that the average program of vacation invigorants is ample for selection by the average toilers and representatives of business and social functions; but the habit of compounding continuous overdosage of pastimes imposes heavy tolls and discounts on the crop of benefits. All are not constituted alike in the power of nerve endurance and vital tenacity. For each and every seeker of change and the respite of rest from routine toil and duty to pliantly presume to emulate the spendthrift dissipations that others may engage in with incessant revel, is to rashly challenge an earlier exhaust of physical capital, and then hopelessly scrape the bare staves of an emptied life.

A varied schedule of open air exercise, whether for work or for play is equally hard, is vitally beneficial if regulated by conservative reason—if gauged to the tenacity of natural strength—if moderated by the exigencies of the present not only, but of the future requirements. And rather probably the future will draft for greater needs than does the present; hence overdosages of excess to-day may figuratively etch to a leaking riddle the physical barriers to vital bankruptcy long before such lamented failure can be afforded in the ordinary span of effectiveness allowed to man. It is seldom that the accustomed routine level of work under fair conditions runs into the morass of premature infirmities; but the superadded strains and dissipations of strength that break instead of repair where repair may be attained

by the new-knitting composure of really restful change of scene and improved hygiene. The overstocked stomach, imposed on by miscellaneous grists of strange, perhaps foreign dietary compounds, wearies of the work and presently falters in its digestive energies. Then compensating nutrition falls off. So the overdone recreations jade the nerves and cramp to a literal colic of abused service the opportunities that, if more rationally employed and enjoyed, would have afforded normal and substantial results of profit. The mountains are clamored to satiety. Peaks have been scaled galore and extinct volcanoes stared out of countenance. Harmless game has been ruthlessly murdered by marauding banditti. The speckled streams have been heartlessly haunted by cruel baited hooks. Rowers upon the soft bosom of the waters have pulled their hearts out over the flashing oars in the glare of the smiting sun whose caloric dissolved to salted sweat the nutritive juices of the body. The seashore is shamed by the fanatic revels senselessly exploited on the beach and in the surf because subjected to the incivilities of vacation throngs. Thousands of blue-lipped and shivering frames have fled with the chill of the overdone plunging following to their homes, to there fill within a year satin-lined caskets of silence. Travel may gather instruction and refreshment if not hastened to an Olympian-like race for the sake of "doing" a year's sightseeing in a month of hours, and then back again to posts of duty with the rush of steam. Our travelers for health frequently return to have their obituary recited as introduction to the announcement that they had recently "been abroad."

The unbending vacation rest, considerably intended as a humane blessing, has been distorted into a practical failure for many a young man and young woman, and also for many an older person, who transposed kindly common sense by the "whack" of the pocketbook wherewith they accomplished some surprising stunts at travel, but who thereby laid the train of trailing discomforts. They may have been enabled to regale delighted listeners with narratives of magnificent distances from New Orleans to Quebec, from London to Rome, before the overdosed strain relaxed and the marble yard was interviewed for an appropriate carved memorial. Should not our considerate contemporaries, who have voice in such matters, more cautiously avoid wonted recommendations to debilitated patrons to venture the experiment of a trip to somewhere for a change, unless they also tack to their outing prescription specific instructions as to how to render their proposed recreations certainly safe and curative?

But even the wisdom of doctors may fall in default. That locally prominent busy practitioner, residing in a bustling country borough, recited illustrated history when he said: "I seemed run down. My wife and others insisted that I needed to take a rest. To escape from the calls of my patients, I chartered a first-class berth

to cross the Atlantic for a visit to Europe. When I got over there I desired to see so much as a recreation that I kept on going and going till I wore out the soles of my shoes. Then I found I was so completely used up that I was forced to ship again back home to get that rest. It took me nearly a year to recover; but I got cured—of that fabled humbug about vacation travel to find a rest!"

ORGANIZED MEDICAL RESEARCH.

2. THE ACCUMULATION OF MEDICAL STATISTICS.

IN a previous article, we called attention to the importance of cooperation among smaller hospitals, in order to make the most of clinical material. Such cooperation is especially necessary, now that the monopoly of hospital service is pretty thoroughly broken.

We wish now to consider organization of effort in reading and compilation. The amount of medical literature, in books and periodicals, is something appalling. At least a new book a day is produced and about 75 journals a week, in English alone. It is obviously out of the question for any one man to read more than a small portion of this literature and it is, in a sense, fortunate that a good deal of it is not worth reading. Yet it is by no means possible to make a ready classification of worth, by noting the name of the magazine, publishing house or author.

Among the numerous exchanges that we receive, are several journals that have not much more than a local circulation and which are scarcely known by name to the majority of our readers. One of these is published in a small city in the East, another comes from the South, while another hails from the Pacific, and a fourth is published in a prosperous city between these points. So far as the great majority of medical readers are concerned, these journals are graveyards of some of the best literature that is written. The great weeklies review one another pretty thoroughly but they cannot, of course, review the entire medical literature even of this country.

The ordinary review for a general clientele of readers must necessarily be after the pattern of a crazy quilt. If each reviewer is careful, the review is good so far as it goes, but it is neither systematic nor complete. One of the best plans of review is found in one of the four journals mentioned above. Each reviewer accumulates, from the world's literature, two or three or ten or twelve articles on the same general topic. Then he condenses and unites these into a single editorial article, which is usually a masterpiece. On the other hand, one of the prominent weeklies has a machine which translates, condenses, sets type and reads proof by a turn of the crank. That result is that the reader's curiosity is aroused to buy the original magazine and find out what the article was about. Unfortunately, many of the articles are in foreign journals which are practically inaccessible and

sometimes the machine does not even give the author's and journal's name and the date, correctly. Other journals credit copious clippings to "Ex." or to a journal without any date or to an author who is mentioned only by his last name, without any address.

Mere indexes of titles are of very little value. If they were, there would be no need to implore the profession to support them as a matter of philanthropy. The essential trouble with such indexes is that very few titles can give an idea of the exact information conveyed. Thus, the index of the Surgeon-General's office, however carefully compiled, cannot be of great service to students even if it were readily accessible without expense to any student who might wish information by mail.

The question box suggests itself as a simple method of obtaining concerted information. But, in medical literature it usually degenerates into questions by incompetent physicians and answers by editors with an interest in proprietary preparations and the result is about as edifying as the column in the "Woman's Workbasket" devoted to Miss Mashmore's Snide Talks with Girls. The writer's experience is that a letter to a medical journal asking for information, rarely elicits answers of value, but that a letter personally addressed to any prominent medical writer will bring forth a courteous, if not always satisfactory, response.

Under existing conditions, the only satisfactory method of acquiring anything like systematic and complete collective information on any point, is to spend one's spare time in reading medical journals—bound books are rarely of much use, except to impart the underlying general knowledge of the subject—to make brief abstracts or to clip out interesting notes of really original work and to file away the notes in properly labeled envelopes. Sometimes, a telephone message or a letter will elicit a clue, more often not. It is gratifying to one's vanity to find that when a man really tries to make an exhaustive investigation of a subject, his friends are as ignorant as himself. It is of very little use to try to hunt down a given problem at once. Try it and see. Can you spare a whole morning, of five hours, and have you a good library available? You will spend at least half an hour in transit. A few minutes more are wasted in getting out the files through which you intend to search, and finding the index numbers. Consulting an index is time-consuming and nerve wearing. You find a surprising dearth of articles on the subject that you seek and it is equally surprising how difficult it is to think of the other ways in which one might head an article on the same subject. Perhaps the information that you want is headed "Report of Case," "Surgical Clinic," "An Interesting Experience," etc. Or it may be in an abstract or review that is not indexed at all. At last you find an article on the very subject and by a leading authority. When you have read it half way through, you find that it is a

very excellent review of the text book knowledge that you already had, that there is a lengthy and instructive case report, that you are getting just the kind of general information that every physician needs but that the eminent writer has had no time to study carefully what other men are observing along the same line, much less to compile the kind of statistics that you need. If you have found any real definite information in the whole morning, you have been fortunate and you are very fortunate in one way and unfortunate in another if a whole morning in a library is other than a rare excess of leisure.

On the other hand, the unsystematic but regular method of making notes and clippings which are sorted from time to time, gradually leads to the accumulation of a vast amount of information of a definite character which cannot be found in books. Just what is wanted on Meckel's diverticulum, is found in a clinic on appendicitis. A most excellent condensation of experience with deciduoma malignum, ready for clipping, is found stuck in at the end of an address to a graduating class and is not indexed at all. The editor simply did the work for you, to fill in some unused space and there is nothing on the reverse side but some eloquence, so that you can use your scissors instead of the pen.

But all this is not *organized research*, it is the most laborious, time-consuming, unsystematic individual effort, done over and over again by different workers and incompletely by all. What is needed—and we have no space to discuss whether the fulfillment of such a need is at all feasible—is a corps of expert reviewers, not simply lay index clerks, representing all civilized languages and large enough in numbers to read intelligently every medical journal and new medical book and to abstract it.

This does not mean an impossible task. We are inclined to believe, from actual personal experience, that a dozen men of the right kind could attend to the periodical literature of the United States, the British Empire, and, to some degree, of that of France and Germany. There are nearly two hundred medical journals published in the United States alone; but the majority are of few pages, they appear only monthly and they contain very little of value that has not been pirated from others. Then, from all, can be omitted the news items, most of the editorials, the book reviews, the excerpts and abstracts of articles appearing elsewhere, unless well enough done to warrant use with great saving of time for the reviewers, all rehash articles—which are valuable for their purpose of instructing the profession and in furnishing convenient reviews—nearly all addresses, orations and reminiscences. The remainder, though a hopeless task for any one man, is by no means so for a dozen.

Then would come the classification of the material, by the card and envelope system. Much of the material

would have to appear under two or more headings, some under half a dozen. With the gradual accumulation of systematic and definite observations, further condensation would become possible. Tables could be combined and individual sources of statistical error would be neutralized. Complete knowledge is always simpler than incomplete. Whole bundles of notes on the Bacillus X, the Class Bacillus, the classification of malarial fevers, the discussion as to the identity or non-identity of small pox and cow pox, are now worthless, excepting as matters of historic interest. It is possible that pertussis may be shown to be, not a specific disease, but simply an aggravated respiratory catarrh occurring in individuals (children) with small larynxes and special tendencies to spasm. Carefully compiled observations on the rare symptom-complexes which are known by the names of their discoverers or exploiters, would soon determine whether these are really special diseases, whether they are definite anomalous forms of other well determined diseases, or whether they are purely coincidental occurrences of independent affections.

The work of such a bureau as we have imagined, would in a way, tend to lighten its own labor. The accessibility of systematically collected information from all periodicals would tend to discourage the acceptance of incomplete articles and would puncture the balloons that keep many ipse dixit men high above their colleagues. In all probability, there would be a shrinkage in medical literature, and many half scientific magazines would go out of existence or would continue simply as purveyors to those of weak mental digestion.

Such a bureau would be of great practical value as it would allow new text books to be written which could supplant many speculative chapters by cold facts and, with the increasing education of the profession and the more and more rapid dying off of the imperfectly prepared portion, the information obtainable would not only interest a comparatively few students but would influence the control of disease by the profession generally.

The Japanese method of warfare was recently commented upon by Sir Frederick Treves at a dinner of the Japan Society in London. He declared that anybody desirous of seeing the last, the most ingenious and yet the simplest thing in the equipment of war must go to Japan, in which country many of the war problems which still concern European armies, have been, or are being, solved. England goes into a war with the expectation of a 10 per cent. sick rate. The Japanese expect and have but one per cent. Sir Frederick believed, moreover, that Japan will eventually have one of the most remarkable schools of surgery that has ever been known to history. "You will understand why; there is the infinite patience of the people, their infinite tenderness. Kinder, more sympathetic people do not exist. Then comes one very important factor, at least, in the making of a surgeon; they have no nervous system."

INCIPIENT INSANITY.

Dr. J. T. W. Rowe, in an extremely important paper (*N. Y. Med. Jour.*, June 3, '05) urges upon the general practitioner the necessity of diagnosing incipient cases of insanity, to the end, in the first place, that many cases may be cured which would otherwise progress to a degree beyond hope of mental restoration; and, in the second place, that by this means may be relieved, to some extent, at least, the congestion which exists in our dreadfully overcrowded public institutions for the insane. It is the general practitioner, not the alienist, with whom lies the remedy, with regard to both these conditions; and Dr. Rowe rightly emphasizes that the former has oftentimes been shamefully neglectful of the proper medical treatment for mental sufferers prior to their commitment to a hospital for the insane.

The physician will find scores of incipient cases in his daily rounds whose progress he can arrest; it is his duty to minister to a mind diseased at least as much as in any other phase of his professional work. He should have a better knowledge of the nature and phenomena of mental disease than generally obtains.

There are many cases showing toxemia following abeyance of function, the result of too close application and overwork amid unsanitary surroundings; such cases, taken in time, will unquestionably respond well to treatment. There are yearly hundreds of such cases committed to asylums, "a large portion of whom have the conviction that they need never have been certified as lunatics had they received timely medical advice in the stage of incubation, and their functions and physical condition bear them out in their lamentable statement of neglected health." The home, and not the asylum, is the proper place for neurosis or exhausted states due to neglect or lack of medical care; imagine the effect upon the psychism of such cases when placed among pronounced lunatics of dangerous or suicidal or maniacal or like tendencies. The family practitioner sees or should observe departures from health in a hundred forms; it is his opportunity to check untoward symptoms; to give sound advice; to consult with relatives; to treat declining bodily health. In these days of the strenuous life a large number of both old and young are to be found on the verge of physical and mental breakdown. "They dare not give in, for the pace has been set, and they strain every nerve to respond to the demands made. The laborer in his ignorance of the laws of nature, sweats in the darkness. The workers in the factory and the slums; the professional man overconfident in his intellectual powers and well ordered nervous system; the lad at school weighed down by too close application and not enough open air exercise; the shy, retiring boy just yielding to evil inclinations; the worried business man and father bearing a heavy load and seeing no way of lightening it—all these patients are very near the border line of mental affection and this is the very time when proper medical advice could avert disaster." Many such could be taken from their work and sent to the sea or the mountains; they might "do half time"; and the physician could see them every day if need be. The neurasthenic; the alcoholic with his fleeting delusions; the railroad man fearing that his "nerve" is failing him; the mother at the climacteric; the young girl with ungratified longings and hypochondriasis; those whose sleep is broken and who begin to hear voices at night; such phases typify the periods of initiation and incubation; "they are the varieties of ail-

ment becoming insanity." They generally require but a few days' rest in bed with a little medical care; an early diagnosis is manifestly essential.

Thirty per cent. of admissions to hospitals for the insane are due to neuroses, drug and drink habits, toxemias of adolescence and states incident to the menopause. The inclination to send to the medical certifiers should be resisted to the last; an asylum is not by any means the only solution of the problem here indicated. Few among these sufferers require such extreme measures as are implied in institutional treatment; sending them abroad if possible, or to the sea or mountains may suffice. Or change to an urban environment may be beneficial for such patients in rural districts. Certificates of insanity are much too easily issued; patients committed are likely to be subjected to suspicion ever after. The knowledge of a former asylum residence militates seriously against a man, for there is always a doubt about his mental restoration. "The pilot experiences difficulty in getting back his old post, the engineer may obtain sympathy, but seldom the charge of his train or yacht, and the business firm is decidedly averse to placing responsibility in the hands of a man with an asylum history." No one appreciates this handicap more than the patient himself; wherefor he does his best to keep the fact of failing strength, either mental or physical, concealed when his daily bread is at stake. Here the family physician may do most effective work, if he have the confidence of such a sick one. Rowe emphasizes that the care of fully established cases of insanity is not here under consideration. Such should go to the alienist and to the asylum. But the physician can prevent oftentimes the full establishment of insanity. He especially "can shed light upon the darkness begotten of ignorance regarding syphilis and its inclusive list of general paralysis, tabes, and all the disastrous consequences to immediate sufferers, including the neuroses of degeneration resulting from it." Rowe completes this vital subject with a condemnation of the absurdly high standards required in the public schools, which are frequently out of all proportion to the mental and physical strength of the pupil. Many a growing and promising lad, whose precocity is mistaken for unusual mental endowments, will win prizes and scholarships at a ruinous price of his psychic and physical stamina; many such cases end in complete wreck and dementia, rendering the subjects fit only for an asylum for the rest of their days.

A DEATH ATTRIBUTED TO ANTITOXIN.

This headline, appearing in a daily paper, moves us to consider with what rarity fatal results have been attributed to the use of this serum. The disease diphtheria is in itself a very grave condition; there is hardly any one more so among those with which the physician has to deal. The remedy, if we are to obviate a high death rate, must be a heroic one. Antitoxin used to be considered such; but in view of the many thousands of lives which have been saved by its use, which must otherwise manifestly have been lost, it should no longer have this reputation. It is indeed to be "classed among the great medical discoveries of the nineteenth century."

On this account we note with pleasure the course of the Health Commissioner of this city in refusing to divulge the name of the physician who injected the antitoxin in this fatal case while in the city's service, until a thorough examination of all the facts had been made; this physician "has a record of five or six years hard work in the department without mishap."

PROF. BURKE'S "RADIOBES."

Prof. Burke, of Cambridge, England, has recently made some experiments which have excited the interests of the scientific world. The excellent reputation which this gentleman enjoys entitles his work to careful consideration; and, by reason of its enormously ambitious scope, it should receive the closest scrutiny and criticism. By placing in a sealed test-tube a piece of radium along with "sterilized" bouillon, states *London News*, Burke has caused minute spherical particles to appear which have some of the characteristics of vital units. They appear under the microscope to have nuclei. They disappear in daylight; but they grow again when placed in the dark. They are neither crystals nor microbes nor infusorians, because *they are soluble in warm water*. (We shall presently note these emphasized words.)

Burke would here seem to have demonstrated the possibility of spontaneous generation, that question which so greatly disturbed both science and theology a generation ago. Possibly, he considers, these globular particles—"radiobes"—are "a primitive form of life." They "suggest vitality," and just as they have been evolved from the bouillon by the fierce radiant energy of radium, so in long ages the feebler radio-activity of the earth may have evolved living particles.

This brings up the old and hoary question, the settlement of which will probably never be within human ken, how life comes to be upon the earth. Liebig and others have thought that life came originally to the earth in the crevices of meteorites; that simple organisms might have come to us in these crevices. But our present knowledge of interstellar space shows us that life, as we understand the term, could not come to us in this way. An organism, such as we here assume, might survive the few moments of heat while the meteorite falls through the air, but it would be killed by the cold—hundreds of degrees below our freezing point—during its ages of journeying hither. Equally fatal would be the dryness of interstellar space; no organic compound could survive the desiccation it would have to undergo. Life must then have originated on this cooling earth. How? That is the mystery. Those who seek it in the realm of the unknowable have thus far sought in vain for its solution. The man of faith attributes it reverently to the "breath" of The Master Builder.*

The experiments of Burke have had their congeners in other times. To go back half a century: Pouchet found that organisms appeared in infusions of stewed hay, in which life had been destroyed by prolonged boiling. This happened even in bottles hermetically sealed. But Pasteur showed that the air was full of living germs, and by passing it through a red hot gun barrel so that no germ-laden air could get to the bottles till they were sealed he made hay-stew which kept microbe-free. Even hay-stew thus prepared and left open on the top of the Puy-de-Dôme, the highest mountain in France, kept free from living germs which do not inhabit the tops of high mountains. Bastiat was moved by his experiments to assert roundly that "living matter is constantly being formed de novo in obedience to the same laws and tendencies which determine all the more simply chemical combinations." But Tyndall proved, as did Pasteur, that if the air was pure no life arose; and Dallinger demonstrated that there are germs to which even boiling is only a mild recreation—germs that

* We have touched upon this subject editorially; *The Riddle of the Universe*, April, '05.

are all but fireproof.

To return now to Burke: We would suggest that his bouillon was perhaps not thoroughly sterilized to begin with, however careful his technique. Sterilization is after all but a relative term. The bouillon may have satisfied all hitherto tests as to its sterility; yet there may still have been latent life sufficient to have been stimulated anew by the comparatively little understood force inherent to radium. And is this element conducive to life? Is it not rather destructive, in fact. Physicians who work with radium in practice find it inimical to living tissue rather than constructive or vitalizing. Carried in the pocket it has produced dreadful ulcerations upon the body through the clothing; finger tips have been burned; sexual power has been pronouncedly impaired. Again, the function of reproduction has invariably been manifested by all forms of life, how insignificant soever, that have ever been studied. This appears not to have occurred in Burke's experiment. Its manifestation is essential to the soundness of his position.

Finally we emphasize that these "radiobes" are soluble in water. Life has invariably begun in water, and has been continued in water. A soluble creature plant or animal would be absolutely contrary to human experience; it is not conceivable in the scheme of things.

Wherefore we would conclude from these and many other considerations, that the most that can be claimed for Burke's experiment is that he may have, by means of chemical or physical elements or both, favored the generation of life in matter supposedly sterile.

SYPHILIS A DISEASE OF THE INNOCENT.

Several noted physicians discussed this and kindred subjects in the *Journal of the American Medical Association* (March 4, 1905), and their papers were conceived in a spirit of most laudable altruism. Dr. Bulkley, of New York, declared syphilis to be too invariably considered disreputable. He set forth its prevalence in past times and in certain parts of the world; as also its infection of whole communities, largely through family life. This physician finds that among cases in his private practice one-half are innocently acquired; and in fully eighty-five per cent. of married women among his patients is this the case. No one is certain of not being innocently infected with syphilis. Surely every physician knows among his colleagues one or more who have thus been infected in the course of their work, especially in digital examinations. Bulkley would therefore urge that syphilis be placed among the contagious diseases under the control of health boards. It should be a punishable offense to communicate it knowingly. Thus would a great step be taken towards restraining the disorder and preventing the infection of the innocent.

Dr. Howard Kelly makes a plea for more active personal endeavor on the part of the profession and of the public for good morals. Indifference in this regard, he considers, has resulted in a riot of sin and disease, debauchery of public service and corruption of the whole body politic. The alternative of government control, which some moralists advocate, is a sanctioning of vice and an ignoring of the principles of morality which are the basis of all positive law. Experience does not show that the legalization of vice is any step towards its abolishment; the effect of legislation in the degrada-

tion of the medical profession is deplorable. Kelly would institute a moral crusade sustained by an intense sense of personal responsibility in this difficult matter.

While in full agreement with Kelly we are of the opinion that there is hardly anything so difficult to conceive as the success of such a crusade, by reason of the condition of civilization in our day. An infinite amount of cant, and of Pharisaism would have to be set aside; an amount of courage much greater than that displayed by the soldier in battle, would have to be exhibited in the revelation of things which are now hypocritically suppressed; and a sense of charity would have to be manifested such as is certainly not likely to be forthcoming. One fundamental fact would have to be thoroughly understood before anything could be accomplished—that the root of the social evil lies not with the poor, wretched women who are periodically raided in civic communities, but in the hearts and minds of those who evilly use them. The prostitute is not the source of the social evil; she is its product. Nothing will ever be accomplished until the unco guide take to heart and imitate the humanity of Him who would not accuse the adulterous woman. Most of all would the "society" of the present day require to be stigmatized.

Among these papers was that by Dr. Prince A. Morrow on The Prophylaxis of Venereal Diseases. We have already editorially set forth the views of this splendid and lofty minded gentleman (July, 1904); and have here but space to note that the method in which he puts most confidence is education, both of youths and of the public generally. The public conscience must be awakened (a mighty task, as we have observed). The present indifference, based on ignorance, and the popular notion that these diseases are simply consequences of vice, must be done away with. A special society consisting of educators, clergymen, jurists and sociologists, as well as medical men and public-spirited individuals generally, should undertake this work. It should be a permanent organization, exerting a continuous active force. Morrow believes that with organized and intelligent effort many of the apparently insurmountable difficulties of this question may eventually be overcome. We hope so; and to hope is perhaps the most precious of all gifts vouchsafed to humankind. Let this give us what comfort it may.

The efficiency of New York Quarantine was attested by a consulting board of eminent physicians, after a careful examination of the station hospitals and laboratory in the lower bay. The especially noteworthy features which these gentlemen pointed out, were the practical recognition of the fact that it is in the infected man and his immediate surroundings that danger lies, and not in the ship or cargo, or its healthy passengers; the systematic use of the thermometer for the detection of early and obscure phases of infection; the application of scientific sanitary measures adapted to each special form of infectious disease; the liberal and humane efforts to ameliorate the hardships of necessary quarantine detention; and, finally, the efforts making in laboratory research and experiment, to add to the knowledge of sanitation. It is a pleasure to emphasize further, that while the country is each year being more effectively protected, there is at the same time a steady reduction of the annoyance to individuals and damage to commerce in which earlier quarantine systems were constantly involved.

BIBLIOGRAPHICAL

A Text-Book on the Practice of Gynecology.—For Practitioners and Students. By W. Easterly Ashton, M.D., LL.D., Fellow of the American Gynecologic Society; Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. Octavo volume of 1079 pages, containing 1046 new and entirely original line drawings. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$6.50 net; half morocco, \$7.50 net.

This work is a new departure in medical text-book making. The author takes up each procedure step by step, the student being led from one step to another just as in studying any non-medical subject. Nothing is assumed, the author in every instance not only telling what should be done, but also precisely *how to do it*. All the methods and details of technic described have been thoroughly tested by the author himself, so as to assure their value and accuracy. A very commendable feature is the departure from the old routine method of devoting a general chapter to physical examination. In place of this the author presents the examination of each organ separately before describing its diseases, thus greatly aiding the student in familiarizing himself with the technic. A distinctly original feature consists in the line drawings made especially for this work under the author's personal supervision from actual apparatus, living models, dissections on the cadaver, and from the operative technics of other authors. There are ten hundred and forty-six of these illustrations, showing the procedures and operations without obscuring their purpose by unnecessary anatomic surroundings. Definite and precise instructions are given regarding the preservation of specimens of morbid tissues and secretions, and their delivery in good condition to the pathologist. The fore part of the work, dealing with antiseptic technic, shows great care in its preparation, Dr. Ashton wisely describing only those methods which he employs in his own practice, in order that the reader may have a clear and definite conception of the subject. Very special attention has been given to the consideration of visceral injuries, and we know of no other work on gynecology or general surgery discussing this important subject with the same amount of detail. This is decidedly a work for the general practitioner as well as for the student and it will be found so complete and exhaustive that even the specialist cannot afford to be without it.

Saunders' Pocket Medical Formulary.—By William M. Powell, M.D., author of "Essentials of Diseases of Children"; Member of Philadelphia Pathological Society. Containing 1,831 formulas from the best known authorities. With an appendix containing Posological Table, Formulas and Doses for Hypodermic Medication, Poisons and their Antidotes, Diameters of the Female Pelvis and Fetal Head, Obstetrical Table, Diet list, Materials and Drugs used in Antiseptic Surgery, Treatment of Asphyxia from Drowning, Surgical Remembrancer, Tables of Incompatibles, Eruptive Fevers, etc., etc. Seventh Edition, revised. In flexible morocco, with side index, wallet and flap. \$1.75 net. Philadelphia and London: W. B. Saunders & Company, 1905.

When a work has reached its seventh edition there can be no doubt of its practical usefulness. And it is not at all surprising to us that Saunders' Pocket Medical Formulary should have attained such popularity, for we know of no similar work containing so much useful,

practical, and accurate information in so small a compass. In this new seventh edition there have been added over 460 new and valuable formulas, selected from the works and private practices of the best authorities. The editor has shown rare discretion in the elimination of many obsolete formulas, inserting in their place newer and better ones, embodying a large number of approved new remedies. In its new edition this Formulary is thoroughly representative of the most recent therapeutic methods, and its convenient size and mechanical get-up make it the most desirable work of its kind on the market.

American Edition of Nothnagel's Practice.—Malaria, Influenza, and Dengue.—By Dr. J. Mannaberg, of Vienna, and Dr. O. Leichtenstern, of Cologne. Entire volume edited, with additions, by Ronald Ross, F. R. C. S., F. R. S., Professor of Tropical Medicine, University of Liverpool; J. W. W. Stephens, M.D., D. H. P., Walter Myers Lecturer in Tropical Medicine, University of Liverpool; and Albert S. Grünbaum, F. R. C. P., Professor of Experimental Medicine, University of Liverpool. Octavo volume of 769 pages, fully illustrated, including eight full-page plates. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$5.00 net; half morocco, \$6.00 net.

This new volume in Saunders' American Edition of Nothnagel's Practice represents the latest word on the subjects of which it treats. And more than that: It is the undisputed authority on these subjects. For this American edition Dr. Ross has made many additions to the article on Malaria, so many discoveries having been made since the appearance of the original article. The articles on the Mosquito and its various relations to Malaria come from the authoritative pen of Dr. J. W. W. Stephens, of Liverpool. The Influenza and Dengue sections are equally well written. The untiring labor of the editors in preparing this work for the English reader is evidenced on almost every page by the lengthy and valuable editorial interpolations. This is the tenth volume in the series, and the eleventh one (that dealing with Diseases of the Kidneys and Spleen and with Hemorrhagic Diseases) is promised very soon. When the series is completed it will be a standard practice of medicine, second to none, and worthy a place in every medical library.

Atlas and Text-Book of Topographic and Applied Anatomy.—By Prof. Dr. O. Schultze, of Würzburg. Edited, with additions, by George D. Stewart, M.D., Professor of Anatomy and Clinical Surgery, University and Bellevue Hospital Medical College, New York. Large quarto volume of 187 pages, containing 25 figures on 22 colored lithographic plates, and 89 text-cuts, 60 in colors. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$5.50 net.

In the preparation of this book the author had in mind the need of a work that would combine the features of a text-book with the educational advantages of an atlas. He has produced a work of great merit, and not alone the anatomist but more particularly the general practitioner will find it of constant value. Professor Schultze has presented his own methods for the study of anatomy—methods proved to be correct and practical by many years of clinical study. Throughout the work the value of the knowledge of topographic anatomy in bedside diagnosis is emphasized. The many colored lithographic plates and the numerous text-cuts, sixty of which are in

colors, are of exceptional excellence. Indeed, both for accurateness of detail and artistic beauty we have never seen their superior. The greater portion of the dissections from which these illustrations have been made are from the author's own preparations. The Editor has added many valuable notes.

Findley's Gynecological Diagnosis.—A Treatise on the Diagnosis of Diseases of Women. For Students and Practitioners. By Palmer Findley, B.S., M.D., Assistant Professor of Obstetrics and Gynecology, Rush Medical College in affiliation with the University of Chicago; Assistant Attending Gynecologist to the Presbyterian Hospital, Chicago. In one octavo volume of 588 pages, illustrated with 222 engravings in the text and 59 plates in colors and monochrome. Cloth, \$4.75 net; leather, \$5.75 net. Philadelphia and New York: Lea Brothers & Co., Publishers, 1905.

The first edition of this most practical treatise having been promptly exhausted, the author has utilized the opportunity to bring this work to date, by adding one hundred pages of text, twelve engravings and fourteen colored plates. The book is one of the best in all respects for the student, as well as the general practitioner, the text being clearly and concisely expressed, and the fine illustrations most helpful. We have no hesitation in commending the work to our readers.

A Treatise on Fractures and Dislocations.—For Students and Practitioners. By Lewis A. Stimson, B.A., M.D., LL.D., Professor of Surgery in Cornell University Medical College, New York; Surgeon to the New York and Hudson Street Hospitals, etc. New (4th) edition, thoroughly revised. Octavo, 844 pages, 331 engravings and 46 full-page plates. Cloth, \$5.00 net; leather, \$6.00 net; half morocco, \$6.50 net. Philadelphia and New York: Lea Brothers & Co., Publishers, 1905.

So much has happened in the five years since the last edition of this book was published, that many interesting details, some of much practical importance, have been added to the present edition, so that we have at command a leading authority upon the subjects of diagnosis and treatment in their latest development. The X-ray work and the reduction of old dislocations are subjects that have received special attention. The author has endeavored to adapt his work specifically to the needs of the practitioner.

Homeopathic Therapeutics of the Ear.—By Charles C. Boyle, M.D., O. et A. Chir. Surgeon to the New York Ophthalmic Hospital, etc. New York: A. L. Chatterton & Co., 1905, pp. 113, 12mo. Price, \$1.00.

The first part of this little book is devoted to the arrangement of symptoms, under the different remedies, the second part is a repertorial index of the symptoms contained in this book only. Those who use symptomatology in prescribing, will find it a useful aid.

Progressive Medicine.—A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. II, June, 1905. Philadelphia and New York: Lea Brothers & Co., 1905.

This volume contains the following subjects—Hernia, Surgery of the Abdomen, Gynecology, Diseases of the Blood, Diathetic and Metabolic Diseases, Diseases of the Spleen, Thyroid Gland and Lymphatic System, Ophthalmology. The articles are ably written by experts in the various themes, and cannot fail to be of interest to the

general practitioner.

How Should We Breathe?—A Physiological Study. By G. H. Patchen, M.D., Medical Director of The Improved Movement Cure Institute, New York. Pp. 47, price 25c. Published by The Improved Movement Cure Institute, New York.

A popular exposition of the mechanism, object and effects of respiration. It clearly demonstrates that there exist other uses for respiration besides that of supplying air to the lungs. This is a suitable little book to prescribe to patients.

A Manual of Acute Poisoning, giving classification, varieties and individual substances usually met with in emergency poisoning with special symptoms, simple tests, chemical antidotes, physiologic antagonists and treatment, together with methods for use in first aid to the injured. By John W. Wainwright, M.D., Member of the American Chemical Society, etc. New York: E. R. Pelton, 1905. 12mo, pp. 96.

This is an authoritative manual of convenient size and easy reference.

A Manual of Midwifery for Students and Practitioners.—By Henry Jellett, B.A., M.D., Dublin F. R. C. P. I., L. M. Gynecologist and Obstetric Physician to Dr. Steevens' Hospital, Dublin; Extern Examiner in Midwifery, Royal University of Ireland, etc., etc. Octavo pp. 1,158. Price \$5.50. With nine plates and four hundred and sixty-seven illustrations in the text. New York: William Wood & Company, 1905.

This volume contains a really comprehensive account of the theory and practice of modern obstetrics. Notwithstanding the large number of pages, the book is not bulky, on account of the thinness of the paper used, and it will be observed that the price at which it is afforded is most reasonable. In this work, the author has had able assistance in special subjects, and it is well illustrated, mostly original. The last eighteen pages are devoted to the infant. The text is classically written, excellently arranged for practical purposes, and we expect it will become a popular text-book for college work, as well as a useful hand-book for the busy general practitioner.

Homeopathy Explained.—By John Henry Clarke, M.D. London: Homeopathic Publishing Company, 1905. 12mo, pp. 212.

The author says that the object of his work is to make the understanding of homeopathy possible to all who wish to understand it, and he claims it is not an easy matter. It is the best exposition of the subject we have seen, from the pure Hahnemannian view-point.

The Crux of Pastoral Medicine: The Perils of Embryonic Man; Abortion, Craniotomy and the Cesarean Section; Myoma and the Porro Section.—By Rev. Andrew Klarmann. 164 pp., 12mo, cloth. Price \$1.00 net. New York and Cincinnati, O.: Fr. Pustet & Co.

This book takes for its subject, to the exclusion of all others, those questions of medicine and theology of which both priest and physician must be accurately informed, so as to avoid collision with the natural and the positive law in the exercise of their respective vocations.

The limitation of the subjects treated to those which interest priest and physician on common ground, brings the book down to a handy little volume, to which one may refer at a moment.

Treatise on Orthopedic Surgery.—By Edward H. Bradford, M.D., Surgeon to the Boston Children's Hospital; Consulting Surgeon to the Boston City Hospital; Professor of Orthopedic Surgery, Harvard Medical School; and Robert W. Lovett, M.D., Surgeon to the Infants' Hospital and to the Peabody Home for Crippled Children; Assistant Surgeon to the Boston Children's Hospital; Assistant in Orthopedic Surgery, Harvard Medical School. New York: William Wood & Company. Octavo, 675 pp. exquisitely illustrated by 592 engravings. Price, muslin, \$5.00 net; sheep, \$5.75 net.

In preparing the third edition of this work it has been necessary to rewrite entirely several portions, to make extensive alterations in others, and to rearrange chapters and subjects.

The most marked changes appear in the chapters treating of congenital dislocation of the hip, of scoliosis, of traumatic and non-traumatic coxa vara, and of non-tuberculous diseases of the joints. Many original illustrations have been added and many of the old ones have been improved.

A chapter on technique has been added.

It is believed that the series of illustration in this book is unequalled in orthopedic literature, no labor or expense having been spared to render it of the greatest efficiency.

Atonia Gastrica.—By Achilles Rose, M.D. New York: Funk & Wagnalls Company. 12mo, cloth, \$1.00

Under this title the distinguished author of this little work has elaborated the subject of abdominal relaxation and ptosis of viscera, in a most satisfactory manner. The relation of some ailments to abdominal relaxation has only been recognized since the author's method of abdominal strapping has been adopted and extensively practiced. This book gives in attractive form all that is known in regard to etiology; it describes and treats on the significance of the plaster strapping as a most rational therapeutic measure. The illustrations will prove of much practical value to those who wish to give the method a trial, but who have not had the opportunity to see the "Rose" belt applied.

Antidote to Snake Venom.—Some forty years ago Fayrer, having discovered that cobra venom, which had been treated with potassium permanganate was harmless (*Collier's Weekly*), attempted to ward off the effects of the bites of venomous snakes by subcutaneous injection of this chemical, but without success. Lately, Sir Lauder Brunton has devised an inexpensive instrument which may be readily carried in one's pocket, and which has none of the disadvantages of the hypodermatic syringe. This instrument consists of a small sharp-pointed blade set in a hollow wooden handle and provided with a wooden cap. In the hollow handle is placed a small quantity of permanganate crystals and the cavity is closed with the wooden cap. A loose band is tied around the limb between the wound and the trunk, a stick is inserted and the ligature made tight. The region of the bite is then cut open with the knife blade and the crystals rubbed in. The permanganate destroys the toxicity not only of cobra venom, but also that of the rattlesnake, the colubrine, two of the true vipers and one of the poisonous water-snakes of India; the assumption seems warranted that this substance destroys the poisonous properties of all snake venoms.

CORRESPONDENCE

MEDICAL THOUGHTS AND APHORISMS.

TO THE EDITOR OF THE MEDICAL TIMES:

A contributor to *Medical Journalism* suggests the best use to which quack advertisements should be applied is that for the reception of the sputa of Hospital or other consumptives. Such is indeed commendable unless we adopt two other means for the destruction of such pernicious and misleading literature, e. g.: either by fire, or by returning the stuff to the senders. If such be not adopted would it not be wisdom to make use of the blank portions of the descriptions and testimonials (such as I am doing) for articles to our favorite journals, in order that good may come out of evil? The prospectus papers of the "Lost Heir," "Gold Crown" and other Mining and Milling Companies, as well as the papers by collection agencies could thus be advantageously used—(if not burned or returned). Such suggestions we offer to the faithful men in our ranks who notice with sorrow the rapid and ceaseless invasion of our profession's enemies.

In consideration of the absence of organization and Tariffs of Fees, country doctors, more especially, are making examinations for Lodge Insurance for fees (grudgingly given by applicants) which are, as a rule, one-fifth less than Life Insurance Companies willingly allow. That Insurance Companies are not unmindful of our cheap work, I have noticed recently that many such companies are reducing their payments—yet many old and rich companies believe the workman is worthy of his hire—hence the \$5—or better, \$10. (For a private letter in reference to an applicant I received recently ten dollars from an old-line company.)

There are many hearts that have ached, and plenty that are aching, and will ache for the word that might have, in fact, should have been spoken—such as would cheer or console:—point to the right way, and show errors often made, and the means best adapted to shun them. Many lives are financially and otherwise lost, especially in Medicine, from the imperfect training in the principles of Medical Ethics to the young M.D. I am led to believe that from the members of the learned professions (Divinity, Law and Medicine) no one starts his career with less ethical knowledge than does the young doctor.

The many virtues of the country doctor have often been "nourished in story and cradled in song."—*Whitcomb Riley, Kipling, Stevenson* and others equally distinguished have put wreaths around *Medicine*, yet, when seen, he presents more virtues even than are or can easily be portrayed—provided he has resided continuously in one village, say for twenty or more years—and observant as he always is. That of three assembled doctors two are atheists is an old saying and yet if you would but listen to his many stories, and hear him recount the many instances of ingratitude of old patients, even abuse for countless favors, even deeds of self-abnegation, you will see that he is, above all men in nobility—even as a god among men—certainly now, as in Homer's time, worth many men, yet patiently and stoically he forgets ingratitude whenever duty calls and censure threatened. The preacher is superannuated but the doctor is superannuated only when death calls him.

Osler has stated of the learned professions, the clergy are the best educated. No doubt he had in view his

father's scholarship as an Anglican Clergyman. That the clergy of the Anglican, Roman Catholic and Presbyterian Churches (and many, too, of the Methodist and other churches) are as a rule better scholars as a body than an equal number of doctors carelessly selected, no one will doubt, but I do think, in this Province, the M.D.'s are superior in general scholarship to, certainly the equals of, any well selected and equivalent numbers of "Leaders of faithful souls and guides of those who travel to the skies." I, too, believe that outside of pulpit work the ordinary Canadian or American doctor is more of a power for general good, and educational and moral interests than the ordinary clergyman.

The further removal from the Council of Trent, says Osler, do we find ministers hugging quacks, superstition, and thaumaturgy. Dr. O. W. Holmes said old women and the clergy were the props of patent medicines. Such no one will deny and the Pharmaceutical Co. that sends free samples and sample pocket cases to preachers knows human nature and that under that clerical vest beats a heart as full of credulity as of blood, and that the owner of that heart never pays the doctor if he can avoid it. He generally abuses the doctor by interfering with his patients and endeavors to illustrate among his *sheep* a knowledge of medicine equal to, if not superior to that possessed by the doctor.

The Medical Missionary, no doubt, in India and other countries similarly in religious darkness, is doing noble Christian work, which we all admit deserves every support, but the *preacher doctor*, more or less a rarity of the present day, is one no respectable M.D. or observant citizen considers worthy of an honest recognition, even, strange to state his co-religionists would starve him out, and even prefer the blasphemer, the drunkard, as their medical adviser. Consistency in works and in daily life is so absent among professors in the church that one may say: In the world's great field of battle, in the bivouac of life, the average Christian soldier is represented by *his wife*—in doctor's families, assuredly.

When, at the close of this century, a Dr. Shelton Mackenzie shall write its *Popular Delusions*, will it not be a sad reflection on this, what we so honorably term, honored Medical period, when such mad-cap delusions as Christian Science, vitopathy, osteopathy and others equally as maniacal, are being scanned by the historical reader. The question arises have we enough asylums for such will-o'-the-wisp hunters and their victims, for although man "a thinking being was designed, few use the great prerogatives of mind." "How many never think—who think they do?"

The John we know is a very different person from the John his Maker knows, and even the John as is known to himself, such is, in effect, an *Oslerism*, although *verba ipsissima* are not used, yet sufficiently elucidative of his aphorism and I may state of our *Trine* composition, and is applicable to all men, not excluding the Holy Willies, so attentive to Kirk and Mart, and hence the difficulty that we physicians meet in reading each character where *facies tres pincti in uno sunt*. Even that of a God—yet of this earth, diabolical.

Every year many young Canadian doctors, thoroughly educated, have self-expatriated themselves, and their MECCA has been the United States and it is use-

less to discuss the absorption of either country to itself, for we are one in sentiment and in literature. Although we have given to John Hopkins an Osler, that our Dr. Barker is to take his place is a reminder of what our Universities are doing and the honor that awaits those who have the soul within, and the God-overhead virtues.

As an examiner in Medicine for our College of Physicians and Surgeons of this Province (Ontario), I know full well that its exactions are the equals for the Licentiate as those demanded by England, Scotland and Ireland. One fact is this: we have no joint stock medical colleges.

Such are thoughts of events and conditions which thoughts but briefly view,—which, too, came as the rustle of the leaves of the "*old apple tree*" under whose loaded branches, in rural simplicity, these paragraphs and aphorisms are thrown together with as much want of order as is noticeable in the ideal "tailor's drawer" described by Longfellow. Yet, if the reading afford to a brother the pleasure given me in the writing such will be all that is demanded, for opportunities and pleasures are fleeting and when I reflect that for nearly thirty-six years such writings as these have regularly afforded me pleasure and diversion with hopes of entertainment—yet

"I scarce can think those days are fled
And yet, like dreams they are no more."

JAMES S. SPRAGUE, M.D.

Stirling, Ont., July, 1905.

A canal and not a pest path is what is urged by the *Baltimore News* concerning the work at Panama. It would seem, without regard to the political aspects of the situation, that "sanitation should precede shoveling" on the isthmus. "What of those young fellows with red blood in their veins who, seeking work with opportunity, are sweltering in the silt? It's a job for the health officer first, and then the engineer." To this end Dr. Gorgas, who has served our country so effectively in similar fields, should be given much wider latitude than he at present seems to enjoy. The *Evening Post* recently reported the arrival of three yellow fever suspects on one steamer in New York Harbor; these had all come from the Panama Canal Zone. Miss Robinson, a nurse among the passengers, "was very glad to get back" after a year spent on the Isthmus. The supply of nurses is falling off; none of those who are leaving Panama will return; the pay is, under the circumstances, very insufficient; and "the conditions are becoming worse all the time." Another passenger reports that prevalent diseases are black measles, smallpox, yellow fever, Chagres fever and malaria, with one case of bubonic plague. The "Dead Train" runs from Colon to Monkey Hill Cemetery, a mile and a half away, as often as fourteen times a day. "There is so much yellow fever about that they keep ten graves always ready for cases of emergency."

A vegetarian diet as a cure for drunkards has been vaunted in London, states the *Daily Mail*. Vegetable soup formed the thin end of the wedge in some experiments made by the Salvation Army; and the complete change was made in four months. Numbers of "lazy, vicious, bloated, gluttonous women" were taken in hand; but after they had started a vegetarian life there was less temper displayed and they were easier to please. Cure was achieved within from ten days to a fortnight.

RETROSPECTIVE THERAPEUTICS

The Management of Typhoid.—W. C. Register, an experienced practitioner, sets forth a number of valuable personal views. We have as yet no reliable specific; in other respects, however, our methods of treatment are now rational and scientific. Carefully selected and detailed directions are essential; and they must be properly carried into effect. The patient should be put to bed immediately typhoid is suspected. They should thereafter not be removed, if possible; this procedure increases the mortality rate markedly. However, if early in the disease it be found that the environment and other factors are unfavorable, a change may be made. Register does not always advise the use of the bedpan; its use will not always cause less physical exertion, less effort and less expulsive force and straining, than if the patient is carefully taken up in a semi-recumbent position. However, if there be marked diarrhea with inanition and a tendency to hemorrhage the use of the bedpan should be encouraged. There should be a competent trained nurse, preferably a stranger; relatives and friends are not good attendants. The patient will be fretted if he thinks himself neglected or improperly attended. The room should be quiet, sunny and well ventilated. If possible there should be an alternative bed; one for the day, the other for the night. This detail is important, the patient is greatly refreshed by the change. From 68 to 75° should be the range of temperature, the latter in the winter. Draughts must be avoided, especially if the patient is awake and has no fever; this is important in the later stages. A light room is not always the best; often a bright light causes headache, nervousness and possibly delirium, when a comparatively dark room will be more agreeable, and will induce sleep. A patient's wishes should be considered, and should be granted when possible. This is particularly so of the bed, which may be "too hard," or "too soft" or "in ridges." The prevention of petty annoyances often saves the patient a great deal of mental and physical stress. The position in bed should be changed from time to time; to avoid pulmonary hypostasis. Anticipate bed sores in the third week. Keep the mouth, teeth and nose as clean as possible, using listerine and water; one may thus eliminate much auto-infection. There should be no visitors, who, usually untactful, leave often in their wake a quickened pulse, a rise of temperature, a wakeful night—the result of long conversations. The mind of the typhoid patient should be at rest; he should not be permitted to think; or to be read to. A case that can be fed intelligently indicates a good prognosis; most cases are either underfed or overfed or improperly fed. Until a week after the temperature is normal fluid diet is indicated; every three hours while the patient is awake. Sleep should not be disturbed for nourishment unless it is much prolonged. It is a good indication when a patient sleeps well; the reverse is the case when fever produces insomnia. Milk is the best food. Register prefers sour milk or butter-milk, producing as it does less nausea and less evidences of indigestion, such as tympanitis or diarrhea. Lithia water may be added to milk—half a glass every three hours. Sweet milk should be taken very slowly, with a spoon, to prevent curdling in the stomach. The milk diet will not suit every case; soups, broths and beef extracts are then indicated. Register has abandoned the use of whiskey and of egg nogs. It is better to underfeed than the reverse; a half glass of nourishment too much may cause a disorder which will take days to cor-

rect.

Water should be given freely; it is the best of eliminants. There should always be a glass of iced water by the bedside to be drunk *ad libitum*—up to twenty glasses in the twenty-four hours. Lemonade, without sugar, is indicated several times a day. Alcohol has a very limited use in typhoid. It is not a very valuable heart stimulant; it is of little value as a food; it may quiet the nervous system, but generally its action, in this regard is the reverse. It is indicated, if it induces sleep and quiet and a moist tongue. In severe hemorrhages or perforation or wherever there is sudden depression alcohol may be given to advantage. Patients who are beyond forty-five, and those habituated to it, should have more whiskey than younger subjects; its combination with strychnine is valuable in people past middle life. Cold water is the best means of reducing fever; cold packs and cold spongings are sufficient for 95° of the cases, the tub being rarely needed. The cold pack Register uses in about thirty per cent. Ice bags may be used to the head and abdomen; but the nurse must remove them when the patient drops off to sleep, to obviate the induction of a subnormal temperature.

Of drugs Register gives quinine in large doses in the beginning of all fevers until the morning temperature, at least, is normal. If fever continues thus five or six days the case is one of typhoid unless there is some other easily recognized local condition. In his cases the coal-tar products are not given. The antiseptic treatment does not cut short the duration of typhoid; neither does it abort or cure the disease, but it relieves or modifies very important pathologic conditions. Salol is preferred, a drachm or more in twenty-fours. Calomel, enough to bring about decided physiological effect, is given to begin with; it is not used after the first few days. For constipation Register prefers enemata. Retained urine contains many typhoid bacilli which are often reabsorbed; salol in the above dosage will lessen the number of these bacilli in the urine and their tendency to auto-intoxication.

Register is prejudiced against "alimentary elimination" in typhoid; in fact, active purgation during the second and third weeks is very commonly the cause of mischief. Headaches will commonly be relieved by ice bags and sometimes hot applications to the head. Insomnia is a serious symptom. However, the author seldom uses a hypnotic. Possibly the bromides are the most satisfactory sedative. Whiskey, Dover's powder, hyoscine, hot sponge baths may be effective. For vomiting a teaspoonful of lime water, cracked ice and a drop of carbolic acid together may be effective, with a mustard plaster on the abdomen and a temporary suspension of diet; a hypodermic of morphine may be needed. Champagne with cracked ice or cocaine and bismuth may be tried. Tympanites due to fermentation may easily be remedied; that due to paresis is not amenable and indicates a serious condition. In the latter case turpentine and large doses of strychnine are the only means to be employed. A persistent and uncontrollable diarrhea is alarming; on the other hand Register has "yet to see a case of typhoid fever die that was constipated." Bismuth and opium combined with salol is indicated for diarrhea. He encourages the bowels to act every four or five days from the beginning of the second week, generally by means of water enemas, with a little glycerin or turpentine. One-half the author's fatal cases have died from hemorrhage. Opiates, absolute quiet, an ice

bag to the bowels and almost a suspension of food for a day or two are indicated. Medicines must here be given in liquid forms, pills and capsules are not dissolved. Ergot and astringents per os are useless. Whiskey is essential where there is collapse. When the temperature is normal for a week a cracker is given in half a glass of milk every three hours. On the fourth day a soft boiled egg accompanies the crackers and milk. Thus is the diet carefully regulated, other things being added.

The Queer Things We Eat are considered by the *Lancet*, which joins in the complaint against the monotonous English round of mutton and beef. However, there is poorer food than this, as for instance, earth which has been eaten in many countries during famine. The Laplanders mix earth with their bread; the Russian peasant uses a "rock flour," and the poorer classes in Hungary are driven sometimes to eat an earth which contains but a trifling proportion of nutriment. Seaweeds are used for food; many are really edible and nourishing. Among these the best example is laver, a kind of stew made from the *porphyra lacinata*. This is made on the Devonshire coast and is much appreciated in some London shops. The sea algae contain much nitrogenous matter and being tender are quite digestible. There are also several sea mosses which are esteemed for their esculent properties. Agar-agar is a seaweed which besides being useful in the laboratory for the nourishment of germ life, yields a nutrient jelly pleasing to some human palates. It is supposed that the edible birds' nest so highly esteemed when prepared in the form of soup by the Chinese has its origin in the birds feeding upon agar-agar.

The turtle is an odd article of food, being perhaps the only edible reptile. Frogs' legs are rarely eaten (at least by Anglo-Saxons) although they are easily digested, have a delicate flavor and have about the same nutritive value as chicken. The snail is highly esteemed in France where it is called "the poor man's oyster." The edible snail is, however, a particular kind and is generally collected from the vineyards in the south of France. In Spain the snail is served in a most excellent and appetizing manner and in Paris a dish of selected snails is reserved for the special use of the government.

Coal would appear to be a strange article of food, but children and cats have been known to consume it in not negligible quantities. There is no evidence, however, although coal contains much carbon—one of the most important elements of food—that in this form it is in the least degree assimilated.

The psychic factors concerned in healing disease are emphasized by E. C. Savidge (*Med. Rec.*, March 18, '05). The personality of the physician has here an important place, "so that one man's digitalis and calomel may be better than another's." Enhancing the alertness of the nervous system increases vitality. Change is the basis of consciousness and consciousness increases vitality. On the other hand monotony tends to lessen vitality. The great laws of the nervous system are: that of novelty, of monotony, of peripheral change, of central stability. Surface impressions release tension on deep centres; they should be changed with reasonable frequency. Freshness, vividness, youth, effective longevity here interest us. A man is old as soon as he ceases to do new things, to diminish his mobility. The term synthetic medicine is applied by Savidge to the study of vital conditions tending to prolong individual life. He applies these principles to a case of supreme nerve pros-

tration in which drugs have failed as follows: Separate the patient from the scene of his troubles as far as possible—new temporary sleeping or business quarters. Restrict all discussion of troubles to the morning hours; do not refer to them in the evening. "Occupy him with his periphery"—Turkish bath, massage, shave, hair-cut, changes of clothing, etc. Interpose some one between him and persons with whom there may be friction. Suggest gentle exercises, sports and games for his atrophied auxiliary faculties. Apply the power of the law of central stability.

Blood Pressure in Man is the subject of an important lecture which was delivered by Dr. Allbutt and his colleague, Dr. Dixon (*Lancet*, February 11, '05). With regard to the physiology of the subject it was pointed out that as fluids are incompressible elasticity is obtained by the structure of the arteries and that the aorta, being larger in proportion than other arteries, acts the part of a reservoir, as does the air bag of the bagpipes, to relieve the pressures. The construction of the arterial trees is such as to facilitate the distribution of the blood with the least disturbance of pressures. Nevertheless the variations of pressure in man are large, as shown by the effects of muscular exertion, cold baths and the like, and in this respect differ from temperature stability. Only a small fraction of the heart's energy is employed upon the velocity of the blood, the chief expenditure being in overcoming friction, which latter depends upon two factors:—the dimensions of the vessels and the viscosity of the blood (which is about four times that of water). A rabbit's heart was exhibited under artificial circulation, attached to a lever and registering its curves upon a smoked glass. To this heart adenalin, atropin, pilocarpine, nicotine and other drugs were applied, by which the pressures were modified. The pathological applications of these principles in shock and collapse, under chloroform, hydrocyanic acid poisoning, the effects of the nitrites, and so forth, were dwelt upon. The remarkable observations of Kocher and Cushing on the enormous increase of pressures set up during compression of the brain in order to counteract the emptying of the medullary vessels by the intracranial pressure, and thus the danger of bleeding in apoplexy were exhibited by diagrams. The importance of integrity of the arterial mechanism was insisted upon as also the effects of toxic matters, of hard labor and of senile changes. The tendency in many persons to rises of arterial pressure in middle life was shown, as well as the injury thus done to the vessels. As these rises, if taken in time, may be counteracted all persons between forty-five and fifty-five years of age should have their physicians estimate their arterial pressures in order that this peril to health and life may be averted. Such rises may occur also in old persons in whom the arteries have undergone senile degeneration and in them are the more perilous, but in most cases, upon timely discovery, they can be readily counteracted.

Disinfection and Disinfectants.—The report of the committee of the American Public Health Association (*Boston Med. and Surg. Jour.*) reviewed all the more important literature pertaining to this subject. Experiments have shown that the disinfection of passenger cars at least by the vapor of formalin was practically impossible; still this was thought the best procedure at present. 1,000 c.c. of the liquid formalin should be used to each car. With regard to chemical methods of sterilizing water the use of tablets—one and one-half grain, bleaching

powder, and one-half grain sodium bicarbonate is recommended.

These will sterilize a pint of water in from five to ten minutes. A tablet of sodium phosphates is then added to remove the taste of chlorin. The foulest river water, it is claimed, can thus be made safe and palatable. Infectious diseases are often spread by means of library and school books. There should therefore be notices in libraries calling attention to the advisability of handling books with clean hands, of not touching the hands to the mouth after handling books until the hands are washed, and in addition, submitting books much used to the action of formaldehyde vapor from time to time. The floors of schoolrooms should be washed from time to time with solutions of formaldehyde so weak as to give no disagreeable odor; infections and colds seem much less frequent among children when this is done. The occasional use of this chemical on floors and surfaces in dwelling houses as well as in public buildings would do much in the preservation of health.

Heart Complications in Diphtheria are considered by White and Smith (*Boston Med. and Surg. Jour.*) upon a basis of 946 cases seen during one year in Hospital. They found heart murmurs and irregular pulse frequent; and conclude that the prognosis depends upon the rate and degree of irregularity of the pulse and the presence of the graver signs of cardiac disturbance. Moderate disturbance is very common. Severe cardiac complications are infrequent. Frequent examinations are necessary because of the rapid changes in rhythm from one hour to the next. Gallop rhythm, late vomiting and epigastric pain and tenderness are important as danger signals of severe heart complications; late vomiting and gallop rhythm present a hopeless outlook. Early use of antitoxin prevents the appearance of grave heart complications. These latter occur frequently during the second and third week of the illness. Bronchopneumonia exceeds heart affections in frequency as a fatal complication. Prolonged rest in bed is necessary in all severe cases. One should be governed by the stage of illness and the patient's general condition. If no serious heart lesions have developed within four weeks there is little danger from this source. Murmurs and irregularity are of long duration and require careful watching long after convalescence.

Surgical Hints of much value are set forth by the *International Journal of Surgery*. In children, steady complaints of pain about the head, the limbs or any part of the trunk, without visible signs of inflammation, should require a careful examination of the spine. A diagnosis of rheumatism is often groundlessly made in such cases. Headache may mean cervical trouble among the first vertebrae; pain in the shoulders or upper chest may be due to lesion further down; caries of the lowest cervical vertebrae may cause pain referred down the lower limbs. Dorsal caries may produce stomach ache or sensitiveness of skin over the ilium.

If the scalpel used to incise the skin is discarded and a fresh knife employed to continue an operation, the chances of carrying skin organisms into the wound are thus much diminished. This refinement of asepsis is quite worth while in such operations, for instance, as involve the invasion of a clean knee-joint. Chronic bone abscesses that have resisted many operations may be definitely closed by von Mosetig's method. A constrictor is applied. Under strict antisepsis the serum and all diseased bone are thoroughly removed; then (with fresh

instruments) more bone is chiseled away until an entirely healthy surface is exposed. The cavity is thoroughly cleansed and washed with formalin solution (one per cent.), then dried with swabs and hot air, and filled with this mixture, sterilized and melted: iodoform, 60, and spermaceti and oleum sesami each 40. The periosteum and skin are sutured without drainage.

The Biological Theory of Sleep is held by Claparède (*La Presse Medicale*) to be that this is a positive function, an instinct which has for its purpose arrest of functioning. This is contrary to the usually accepted opinion that sleep is the consequence of an arrest of functioning by intoxication and by asphyxia. It is not because we are intoxicated or exhausted that we sleep, but we sleep in order to avoid these conditions. The fact that sleep is not proportional to exhaustion would argue in favor of Claparède's theory. Sleep may be partial. One sleeps through certain noises but not through others. Moreover, the curve of the profoundness of sleep, inexplicable by the toxic theory, is in harmony with the theory that regards this phenomenon as a positive nervous function. "The instinct, the reflex is provoked by numerous excitants:" endogenous, as the condition of the blood, the sensation of fatigue; and exogenous, as the images empirically associated with the idea of sleep. Sleep is in itself a reaction produced by these excitants, and is an inhibition which manifests itself subjectively by a lack of interest in exterior things.

The sewing machine's effect on health has been studied by Nussbaum (*Wienerklinische Rundschau*) who finds that the position at the machine and the constant use of the legs are liable to cause congestion in the female genitalia and consequent inflammation. The menses are frequently very irregular and abortions, inflammation of the adnexa and other affections of this nature are unusually prevalent among these working women. They should take especial pains to sit erect and breathe deep; frequently rising from their work, practicing respiratory exercises and getting outdoors as frequently as possible. Good ventilation and illumination are essential.

Albuminuria of puberty is by no means rare. Lommel (*Deut. Arch. f. Klin. Med.*) had the opportunity to make frequent examinations of 500 young factory employees, of whom nineteen per cent. revealed albuminous urine. In most cases only traces could be discovered—generally as globulin, as in acute nephritis, indicating the presence of wide meshes in the filtering apparatus of the kidney. The cause in these adolescents was to be found in an impoverished condition of the blood, together with a mild degree of cardiac insufficiency and tendency to stasis, such as is liable to occur during puberty "where the rapid growth of the body is out of proportion to the functional powers of the internal organs." Dilatation of the heart, tension of the arteries and accentuation of the second (aortic) sounds were frequently noted. The condition is readily outgrown, not having been found in any of the men in the same factory above twenty-five years old. The diagnosis from chronic interstitial nephritis is made by the slight amount of albumin, the rare occurrence of hyaline casts and the distinct intermittent type in the latter. Moderate cardiac changes are not valuable, as they occur in both.

Actinomyces, states Bevan (*Ann. of Surg.*, May, '05), appears clinically under four different forms from four different routes of infection. That of the head and neck, with infection from the mouth and pharynx in fifty per cent. of the cases; chest actinomyces

through the respiratory tract in fifteen to twenty per cent.; the abdominal type with infection through the alimentary canal, or through the genital tract in the female, in twenty to twenty-five per cent. of the cases; and actinomycosis of the skin in two per cent. The disease is not rare, its cause in man is the ray fungus which may enter through the mucosa, leaving no discernible lesion at the point of entrance. The primary lesion consists of granulation tissue and it extends in all directions, rarely by the lymphatics. The pyemic form may result from breaking through a vein, multiple foci being established in the lungs, liver, spleen, etc. The prognosis is now distinctly better than formerly; some cases recover spontaneously. If surgical treatment is not possible, the prognosis is grave, but not hopeless. If possible the diseased tissue should be incised, scraped, cauterized with nitrate of silver stick, the cavity packed with iodoform gauze and the iodide given internally in large doses. The X-ray should be used subsequently.

General Therapeutics in Eye Diseases is discussed by A. M. Ramsey (*Jour. A. M. A.*, March 4, '05), who points out the danger of a narrow specialism and the necessity of paying attention to the broad principles underlying all rational therapeutics, with especial regard to the eye. More than its proper value should not be assigned to local treatment. It is necessary to study the general principles of pathology before real progress can be made in ocular therapeutics. Local conditions can often be explained by a study of the general systemic condition. Improper feeding with defective metabolism is often, for instance, the cause of phlyctenulae. The importance of rest as an aid to nutrition is emphasized.

Radium not a cancer cure is the conclusion reported at the third annual meeting of the cancer research committee in London. Sir William Church, president of the Royal College of Physicians, declared that the year's investigations confirmed the conclusions announced in 1904, that cancer has no associations with peculiarities in diet, climate or mode of life. It appears that cancer cells have the power of perpetual multiplication; and the results thus far obtained would argue the necessity for close study of the processes of cell multiplication wherein seems to lie the secret of the malignancy of cancer. The property here set forth definitely separates cancer from known infectious diseases. Many experiments were made in the treatment of malignant growths; but immunizing with serums seemed ineffective, except as they—in some cases—deprived the cells of the power of growth. The action of radium and radioactive solutions was carefully studied, with the result that though they sometimes influenced the growth and development of normal and tumor tissues, they had no selective or special action; while the amount of radioactive solutions necessary to produce any result far exceeded the quantity that could be safely introduced into the body.

The National Food Manufacturers' Association, with headquarters in Chicago, has been formed for protecting "the legitimate manufacturers of food and food products and the consumer against adulterated, fraudulent and unwholesome food." The matter of pure food will be carried before the next Congress in an effort to get satisfactory legislation and the necessity will also be urged which manufacturers feel that their business with the distributors of their goods in different states shall be regulated by the Department of Commerce and not by the Department of Agriculture, at the same time,

however, recognizing the importance of the supervision of the bureau of chemistry in the Department of Agriculture.

Relation of Diseases of the Eye to Those of the Teeth.

—Under this caption Carhart (*Med. Rev. of Reviews*, February, '05) comments upon the very close anatomical relation between these members. The same periosteum which lines the orbital cavity extends to the alveolar border of the upper jaw. Often do the roots of the upper teeth extend directly into the antrum of Highmore, whence disease often reaches the orbit through the thin partition of bone. The angular artery and certain other vessels run almost directly from one region to the other. The same general nervous supply (including the sympathetic) reaches both. There is then a logical relation. Dento-ocular affections vary all the way from slight pupillary dilatation conjunctivitis and failure of accommodation on the one hand to absolute blindness, loss of the eyeball and possibly death on the other. W. Reber (*Ophthalmology*, Vol. I, No. 1.) considers that the assistance of the dental surgeon should be sought in all cases of unexplainable paralysis of the accommodation, dilatation of the pupil, palsy or spasm of the external ocular muscles, rebellious corneal ulcers, phlyctenular disease, lachrymal fistula, orbital cellulitis, abscess, caries and peritonitis and in threatening glaucoma without apparent cause. On the other hand the dentist should refer to the ophthalmic surgeon the development of any ocular symptoms whatever—particularly altered pupils or accommodation, lowered vision, painful eyeballs and swollen lids or orbital margins with prominence of the eyeball. In from two to ten days one may expect infection from an alveolar wound. Reflex affections (traumatic hysteria) may occur at almost any time within six months after an extraction; impressionable females are the likeliest subjects in this regard. Certain eye-strains may occasion neuralgias reflected along the dental branches of the fifth nerve, and thus make it appear as though the teeth were the primary offending cause. The small and the first great molar most frequently provoke the process that may involve the antrum, the lachrymal sack and perhaps the orbit. "A diseased tooth may express itself in almost any part of the body, while, on the other hand, disease in any part of the body may express itself in discomfort through a tooth" (Garretson).

The treatment of uterine bleeding is ably discussed by Boldt (*Bost. Med and Surg. Jour.*, January 12, '05), who has used stypticin in a number of cases with marked effect; in others it was powerless. Among thirty-five fibromyomata eleven were benefited, the rest were not. In one case of menorrhagia due to an interstitial fibroid the relief was very marked. In hemorrhage due to uterine cancer the result was negative. Five cases of post-puerperal bleeding were cured after the removal of retained placental shreds. Hyperplastic endometritis yielded well to curetting with stypticin; the glandular form did not. About half of Boldt's cases of chronic metro-endometritis were benefited by this treatment, which failed, however, to cure only three among twenty-three cases of non-suppurative pelvic inflammation. Stypticin was very beneficial in irregular bleeding during pregnancy; nor were there unfavorable symptoms as a result. Most cases of profuse menstruation in virgins without organic pelvic changes were benefited; as also atypical bleed-

ing without pathological cause during the climacteric. Boldt considers stypticin, while not a panacea for all cases, better than any other remedy; in some instances it has been a specific. If no effect is produced after three large doses ($2\frac{1}{2}$ to 5 grains), its continuance is useless. In fibroids its use should be discontinued if two hypodermics of five grains each at intervals of from ten to twelve hours do not diminish hemorrhage. No harmful results have followed the use of stypticin even in 5-grain doses every three hours. Sometimes the pain associated with bleeding has also been relieved by this drug.

For too profuse bleeding one should begin with one-grain doses till about one week before the expected flow; upon the appearance of the flow $2\frac{1}{2}$ grains should be taken every three hours through the entire period. Metrorrhagia requires $2\frac{1}{2}$ to 5 grains every two or three hours until the bleeding is lessened, when the dose may be gradually decreased to one grain every four hours. If quick results are imperative from 3 to 5 grains may be injected in a 10 per cent. solution into the buttocks. The taste of this drug is disagreeable; it should therefore be given dry in capsules.

Uric Acid.—The *Journal A. M. A.* has in its issue of May 13th completed its important series of editorial papers summarizing the present-day knowledge upon this subject. In this series are to be learned the physiological and pathological action of uric acid in the organism and the qualities and relationships of this chemical compound. The exogenous and endogenous uric acid of oxidative origin are distinguished; and a differentiation between these and that of synthetic source. The methods of its formation and destruction and the approximate localization of these processes in the body are set forth; as also the fact that this substance circulates in the blood chiefly as mononatrium urate or in combination with thymine acid. Gout is probably the only disease for which disturbances of uric acid metabolism are directly and mainly responsible, and the bearing of the facts set forth on the rational treatment of this disease is pointed out. In combating the primary disorder of metabolism we must protest against the influences that favor its development, and we may also attempt to prevent the deposit or excess of uric acid or urates in the body. The formation of exogenous uric acid can be largely controlled by diet, limiting the nucleins and purin derivatives in the food. There is no certain proof that drugs can diminish uric acid formation, though claims have been made for China acid. To increase the secretion of urine is the best way to increase the excretion of uric acid; hence copious water drinking is advised. How to destroy uric acid in the body is not clear; there is no proof of any diminution of the oxidative processes in gout or any basis of the opinion that drugs hasten uric acid destruction. "Antilithic" and "uric acid solvent" treatment is fallacious; for it is impossible to produce in the blood and tissue juices exactly the soluble urate needed and by the further fact that the solubility of any urate is decreased by the sodium salts in the blood. If uric acid is to be rendered more soluble in the blood it must be by the formation of some easily soluble combination with other organic compounds with production of substances which are not dissociable—that is, which are not salts. Uric acid combines with thymine acid in this way and also with formaldehyde forming a non-salt-like compound, but it is doubted

whether such substances ever really exert any beneficial influence on gout. The best that can be expected from drugs at present is the relief of pain by the use of salicylates, colchicum and the like. The therapy must be essentially a well-regulated régime with rest and local applications for the acute attacks. For the tophi in the points local phagocytic activity may be excited by means of hot applications and massage.

The Nervous System in Chronic Nephritis is considered by Leszynsky (*Med. Rec.*, May 20, '05), who finds that the following manifestations may be expressions of kidney insufficiency: Cephalic paresthesia; headache in various degrees to true attacks of migraine; insomnia; numbness in the extremities; neuralgic pains in different parts of the body; vomiting; muscular twitching; monospasm or hemispasm to general epileptic convulsions; amaurosis; deafness; transitory attacks of aphasia; facial paralysis; paresis or paralysis of one extremity; hemiparesis, hemiplegia or paraplegia; gradual or sudden coma; delirium; stupor; insanity; permanent hemiplegia with or without aphasia. Most of these conditions are discussed in detail by this able observer; and the deplorable fact is emphasized that sufficient attention is not paid to determining the significance of nervous symptoms. Many cases of chronic nephritis with nervous manifestations are incorrectly diagnosed by the attending physician. In some cases the urine has not even been examined.

Cancer in and about the mouth.—Cobb (*Bost. Med. and Surg. Jour.*, April 13, '05) emphasizes the importance of early differentiation between a benign growth and one in which we must wait for symptoms of degeneration. Leukoplakia has the longest period of incubation. Microscopically the patches are scar tissue and frequently degenerate into epithelioma. When ulceration appears induration should be sought for; simple ulceration may also become carcinomatous. In doubtful cases anti-luetic medication should be tried a week before operation. Traumatic ulcerations may almost always be associated with their causes. In making wedge-shaped incisions for examination one must cut into healthy tissue wide of the lesion to avoid metastases and to afford comparison under the microscope between the healthy and the diseased tissues.

Brain Tumor and Trauma are differentiated by E. W. Holmes (*Am. Med.*) who finds that the pathology of a traumatic cerebral growth is not essentially different from that of tumor elsewhere, though modified by the peculiar structures from which it may spring, by its method of nutrition and by the very means which are intended for the protection of this portion of the nerve axis. Where the force is excessive, physical and anatomical conditions become a source of danger, tending to the development of new growths at a distance from the point of impact. The effect of injury in producing tumor is not solely from the violence, but is also from perverted nutrition and development. The mysteries of tumor growth in this region will therefore have to be explained upon a chemo-physiological rather than upon a bacteriological basis. Sachs tabulated 600 brain tumors, of which 299 were upon the cortex of the cerebrum and little brain, the portions most exposed to injury. The time of appearance of the tumor after a blow is without limit. We have dealt editorially with the diagnosis of lesions of the encephalon due to traumata (June, '04).

MISCELLANY

A generous public contributed ninety-two thousand dollars in the "Hospital Sunday" collections in New York City.

Dr. Osler has arrived, comments *London Punch*, and all persons over a certain age are trying to look as young as possible.

All idiots or cretins in the Alps, states the *British Medical Journal*, are to be treated at Government expense with tablets of thyroid extract from sheep and other domestic animals.

Beardless physicians are hoped for in Iowa, the Board of Health of that State having requested its physicians to this end, on account of the possibility of beards being carriers of infection.

Artificial teeth are now no longer provided recruits by the British Army Council. The soldiers would not pay for their teeth out of their shilling a day, as agreed, and when ordered to, deserted, "teeth and all."

"The complete comprehension of a discovery is often not made by the discoverer himself, but he may be brought to a wider comprehension of his contributions to science by the opposition of men of authority."—Ceramini.

The optional disease is the term applied by Spalding (*St. Louis Med. Rev.*, June 3, '05), to smallpox. Failure to obtain "a take" in vaccinating is usually due to an inert virus and sometimes to improper technique in vaccinating.

A milk bottle made of paper is described by *Sanitation* as being made of spruce wood fibre paper saturated in paraffin to the boiling point, after which it is baked. This process very effectively sterilizes the bottle. Thus will cleanly bottles be assured.

Before deciding to operate, Billroth always asked himself: "Would you permit such an operation as you intend performing on your patient to be done on yourself?" Years and experience bring in their train a certain degree of hesitancy, he declared.

Dr. Darlington, the Health Commissioner, has actually had the temerity to indicate a desire to have a voice in designing new subways in New York City. This is the opinion of some public officials. It shows, in fact, a very broadminded and sensible appreciation of the new aspects of subway sanitation which the hot weather have made manifest.

Menstrual urticaria is described by Miller (*Med. Rec.*, May 13, '05). Occasionally this lesion persists until the flow begins, rarely during the first day or two of its course. During the intervals between the periods the patient is quite free from attacks and she is perfectly healthy in other respects. The urticaria is of the ordinary type.

Prof. Nothnagel, a very great physician and clinician, has died. Since 1882 he was professor of clinical medicine in Vienna and was the author of a number of well-known medical text-books. It is said that papers were found in his room in which he described his symptoms hours before his death, before which he suffered three severe attacks of coma.

A noble deed nobly rewarded.—An employee of Bellevue Hospital found a fat-looking pocketbook containing two cents in good United States money. He returned it to its owner who sent him a note of thanks which dwelt at length upon the beauties and benefits of honesty

and concluded by begging him to accept the enclosed reward—exactly one-half the amount found.

Burning his children's fingers with matches is the accusation upon which a man living in Orange, N. J., was found guilty. The middle fingers of the two children, aged three and five years, were so terribly injured that weeks were required for healing. The father declared that the children, young as they were, were beyond his control. He had not intended "to burn them so severely."

An association for the prevention of infant mortality is reported to have been formed in Russia. More than half the infants born in the Czar's European dominions die under the age of one year. It is purposed to establish creches and hospitals in the country districts, to provide good milk in plenty for poor children and to diffuse among the people a knowledge of the principles of hygiene.

The Harvey Society, consisting of laboratory workers in New York City, has recently been established under the patronage of the Academy of Medicine. Its purpose is the diffusion of scientific knowledge by means of public lectures. There will be two classes of members, active and associate. The latter will be such persons as may be in sympathy with the objects of the society and reside in New York.

A nurse's suit against a physician resulted in a verdict of \$250 for the former, in Cambridge, Mass. The latter was accused of stating "publicly and maliciously" that the nurse's neglect resulted in the deaths of several patients. The physician considered that in his position the statements were privileged; having been asked about the nurse he had honestly replied that he did not care to recommend her, he declared.

A Sanatorium for New York City's poor consumptives has been secured by the Health Commissioner, after much effort, and failures not a few. It will be situated in Orange County, permission having been secured from the town authorities of Greenville and Mount Hope. Options are also secured on several thousand acres of land. Dr. Darlington has worked so quietly that he has secured the required permission before his object became generally known.

An ice plant is used in the Middlesex Hospital in London which produces three tons in twenty-four hours at a cost of \$2 a ton, as against nearly \$6 a ton, when purchased. The evaporating coils of the apparatus after making ice are immersed in a brine tank a little way from the plant, and the brine thus cooled is used to reduce the temperature of four chambers to a point a little above freezing. Two of these chambers are used for preserving food, one for preserving specimens for the pathological school, and the fourth serves as a mortuary for twelve bodies. Assuredly pure water is distilled by this means.

The penalty of "unconscious impulse" has been paid by a Bellevue interne who used the Paquelin cautery upon a patient in an obnoxious manner. The interne in justifying himself to the authorities stated that while treating the patient a colleague looked in at the door and said: "That's a fakir you have there." Whereupon the interne (so he declared) without any conscious impulse of his own, traced the word "fakir" on the patient's chest. He was "astonished and horrified when he saw what he had done." His explanation did not save him, however, and he was summarily dismissed from his hospital service; and rightly, too.

THE INDIVIDUALITY OF DISEASE.

BY F. B. BRUBAKER, M.D., MIFFLINBURG, PA.

"THE luminiferous ether fills stellar space and makes the universe a whole, rendering possible the intercommunication of light and energy between star and star, but the subtle substance penetrates farther, for it surrounds the very atoms and molecules of solid and liquid substances. Transparent bodies are so related to each other that the waves that excite light can pass through them without transferring their motion to the atoms. In colored bodies certain waves are absorbed, but those which give the body its color pass without absorption."

Humboldt, in his observation at the Falls of Orinoco, found the noise of the falls far louder by night than by day, though in that region the night is far noisier than the day. The space between him and the falls consisted of rock and grass intermingled. In the heat of the day he found the temperature of the rock to be considerably higher than that of the grass. Over every heated rock he concluded rose a column of air rarefied by the heat, its place being supplied by the descent of heavier air. He ascribed the deadening sound to the reflections which it endured at the limiting surfaces of the rarer and denser air.

It will thus be apparent that we are here face to face with three different forms of energy, else one form which manifests itself in three ways. First, we find that there is a difference between the conduction of sound at the Falls of Orinoco, it being greater by night. Secondly, we find that when the rocks were heated as during the day, the air arose the heavier and the denser air offering to the conduction of sound a different surface. This interrelation of light, heat and sound being found upon examination to be but different forms or manifestations of one form of energy, wave lengths, in short. We likewise find that the law of this reflection is precisely the same, illustrating the analogy between light and radiant heat, as regards reflection.

If now we inquire into the physical cause of color, we find that it is always dependent upon absorption; absorption of some of these very wave lengths. The visible rays, those relating to light. While here again we find that the angle of incidence is equal to the angle of reflection, so that whether we consider sound, light or heat, which we have found to be different expressions of one force, we find them responsive to the same law, as sound is to the clashing of forces, a waste energy, and as heat is to motion a resultant quantity, so color is to growth.

If we turn our attention to the skin, the anatomical structure of which consists of the cutis vera or true skin, and a layer of compact tissue covered by the epidermis or cuticle, this likewise consists of several layers of which the deepest (stratum mucosum or mucous layer) is of large and moist cells while those of the uppermost (stratum corneum or horny layer) are dry and hard. Between these is often a layer of granular cells (stratum granulosum) while overlying it is a thin glassy layer (stratum lucidum), the pigment in which will be found in granular form within the deeper cells of the stratum mucosum, being more abundant in quantity in those cells which rest on the surface of the cutis vera and gradually diminishing in amount as we pass from the deeper cells to the surface, until at length it disappears altogether, and the superficial layers of the epidermis are left clear and transparent.

This pigment of which melanin is an important constituent is a highly complex body, possessing remarkably stable qualities. What we know of its chemical constitution we owe largely to the researches of "Sorby," whose monographs still remain the standard authority. That observer conducted his experiments on the pigment of the hair, which for all practical purposes may be considered as identical with that of the skin. He was able to isolate three pigments, a brown red, a yellow and a black. In the lighter tints of hair the two former colors or admixture of them are alone met with. When the shade grows deeper, it is due to the admixture of the black constituent in variable quantity. In absolutely black hair after the black pigment has been separated out, a large proportion of the red and yellow pigments may still remain. Thus "Sorby" found that some very black negro hair contained as much of the red constituent as any equal weight of very red European hair. Now whether we classify man as a single species as did "Darwin," as two as did "Virey," or four as did "Kant," as six, "Buffon," as eight, "Agassiz," or as sixty-three as did "Burke," and with authorities at almost all intervening numbers, one thing is certain, and that is that he varies, and it will be at once apparent that the distinctive characteristic on which naturalists have based the classification, at least in late years, has been the color of the skin and hair. Let us inquire in the first place whether geographical distribution has any controlling influence therein, or whether on the other hand the normal coloration of man (variable as no one denies) is the result of chance? We are deeply impressed with the fact first noticed by "Agassiz" that the different races of man are distributed over the earth in the same Zoological Provinces as those inhabited by distinct species and genera of animals. This is manifestly so with the Australian, Mongolian, and Negro races of man, a little less so with the Hottentots, but plainly so as shown by Dr. Wallace with the Papuans and Malays, who are separated by nearly the same line as divides the great Malay and Australian Zoological Provinces. And whether we consider man as originating at some select spot on the earth or whether springing into existence coincidentally or successively in many spots, we find that owing to migrations, north, east, south and west, he has become variously crossed, being fertile in all directions. In Brazil, we behold an immense mongrel population of Negroes and Portuguese. In Chili and other parts of South America the whole population consisting of Indians and Spaniards, blended in various degrees. In the Malay Archipelago are found two strongly contrasted races. The Malay occupying almost exclusively the larger western half of it, and the Papuans, whose headquarters are New Guinea and several of the adjacent islands. Between these in locality, tribes who are also intermediate in their chief characteristics, and it is sometimes a nice point to determine whether they belong to one or the other race or have been formed by the mixture of the two. In the great island of Ceram there is also an indigenous race, very similar to that of Northern Gilolo. Bouru seems to contain two distinct races, a shorter round face people with a Malay physiognomy, who may probably have come from Celebes by the way of Sula Islands, and a taller resembling that of Ceram. Far south of Moluccas lies the island of Timor inhabited by tribes much nearer to the true Papuan than those of the Moluccas. In the islands west of Timor as far as

Flores and the Sandalwood islands a very similar race is found which also extends eastward to Timor-laut where the true Papuan race begins to appear. The small islands of Savu and Rotti, however, to the west of Timor, are very remarkable in possessing a different and in some respects peculiar race. These people are very handsome with good features, resembling in many characteristics the race produced by the mixture of the Hindoo or Arab with the Malay. They are certainly distinct from the Timorese or Papuan races, and must be classed in the western rather than the eastern ethnological division of the archipelago. Thus it will be observed that a great intricacy exists if one should in all cases as did Dr. Wallace in this, attempt to decipher the exact origin of these various people. However, there is one fact, a truth with which this essay has much to do, and that is that regardless of origin, regardless of great crossing of these people for thousands of years, the color of all these varied tribes is a light reddish brown with more or less of an olive tinge not varying in any important degree over an extent of country as large as all southern Europe. The hair being equally constant, being invariably black and straight and of a rather coarse texture, so that any lighter tint or any wave or curl in it is a certain proof of the admixture of some foreign blood. The face is nearly destitute of beard and the breast and limbs are free from hair. The stature is tolerably equal and is always found considerably below that of the average European. It is to be especially remarked that the brown and the black Polynesian races closely resemble each other. Their features are almost identical so that the portraits of a New Zealander or Otaheitan will often serve accurately to represent a Papuan or Timorese, the darker color and more frizzly beard of the latter being the only difference. "I believe, therefore," says Dr. Wallace, "that the numerous intermediate forms that occur among the countless islands of the Pacific, are not merely the result of a mixture of these races but are truly *intermediate or transitional*, and that the brown and the black, the Papuan, the native of Gilolo and Ceram, the Figian, the inhabitants of the Sandwich Islands and those of New Zealand, are all varying forms of one great Oceanic or Polynesian race." In color brown blending to black as we go southward. True it is that this fact relates to the indigenous population directly and not to the imported, so that the exception to the rule can be easily noted. Australia with her aboriginal type, New Zealand with hers, Southern Africa to the west, with the great Indian type of South America in the New World, a gradation of color from brown to black as we go southwards under and beyond the equator. Nor is this all, for upon closer inquiry and extending our observations northward, we are at once struck with the fact that the Malayan race as a whole, very closely resembles the East Asian population from Siam to Manchuria. "I was much struck," says Dr. Wallace, "when in the island of Bali I saw Chinese traders who had adopted the costume of that country, and who then could hardly be distinguished from Malays." But what renders this fact all the more trustworthy is that in passing in a direct line westward we at once behold the great similarity of type, although here as indeed everywhere over the habitable globe, but especially here it is necessary for the student to be extremely careful in not confounding the indigenous with the imported, which in some countries has en-

tirely changed the type. However, whoever attends to the subject closely cannot escape the fact that pursuing a direct line westward between these same lines of latitude, of which Manchuria forms the northern boundary, the yellow or coppery color prevails. Westward through Afghanistan, Persia, Arabia, Egypt, Algiers and Morocco, the type Mediterranean westward to the United States. What more distinctive, what more nearly allied in color than the aborigines of the United States and the Chinese, making due allowance for the longitudinal difference, being a little less yellow and a little more coppery in the west. But this is not all for pursuing our journey northward and taking in all that vast country comprising Europe and other northern land surface, we behold a gradual fading of color into the fair of southern and the blond or flaxen of Northern Europe. Now whether we consider the cradle of the human race as the tropics, or on the other hand whether we believe man to have first seen the light of day nearer the poles, it matters not, seeing that he has spread over the earth, and that he varies not only as regards his height, weight, mentality, etc., but likewise in color, the special inquiry we are making. For starting in the extreme north and pursuing our uninterrupted way southward, man in the consideration of color is found to progressively deepen. Nor is this fact without its direct and physical analogy, for De Lanpouge, following Gobineau, declares of the Aryan race of Northern Europe, tall, long-headed and blond, and says of them, "They are the stirring, active, ambitious, independent, courageous, locomotive element of mankind, the salt of the earth." Statistics show that the long-headed European has the upper hand in almost all cases, having far more than his proportionate share of wealth, he gravitates upward towards the higher social strata, and his preponderance in the higher schools is great. Going southward in an intellectual as we came northward in a physical investigation and viewing the same in its indigenous entirety, we are not a little surprised to observe that nature has in no wise been idle. Now whether we believe color to be accidental, or whether we believe it to have resulted from some selective power of nature, one thing is certain, and that is that turning our attention to the animal world and starting in the north we find that a large number of animals have a winter coat differing remarkably in color, as well as in length, from the summer dress. This is manifestly so in Arctic varieties. The lemming, for instance, which is a mouse-like creature, which as winter approaches turns snow-white. Pallas states that in Siberia domestic cattle and horses become lighter colored, and the roebuck, which in summer is of a foxy red color, as winter approaches changes to a gray fawn with a large patch of pure white on its buttocks. In our own country, the Adirondacks ermine and mountain hare undergo the same change to a colorless, white garment, and Dr. C. H. Merriam asserts that the whiter coat is assumed only after the first snow fall. Now these sudden and complete changes in the extreme north find their counterpart as we go southward, and if we take the trouble to examine into the subject closely we will find here as elsewhere that nature draws no close or exclusive lines of demarcation, but silently works out her oft-times unobserved plan, so that going southward in the study of animals as we came northward in the study of man, we find our rule works itself. Mr. J. A. Allen, than whom there is

no better authority, assures us that birds become more strongly colored as we go southward, but this is not all for we find that a difference likewise exists in the same species between those inhabiting the seaboard and those ranging westward into more elevated tracts. Mr. Gould is firmly convinced that birds even of the same species are more brightly colored under a clear atmosphere than when near the sea coast or on islands.

In our own country a difference has been noticed entirely in accord with these facts, those species which range widely, say from the Atlantic seaboard to the Rocky Mountains, becoming progressively brighter colored as they range westward into the high and dry scope of country, comprising the Rocky Mountain district. I think we have all noticed this in the people of Kansas, Colorado, etc., they are not as fair skinned as their Eastern cousins. Wollaston is also convinced that residence near the seas affects the color of insects. If we should ask ourselves the question, what is the meaning of all this, admitting as we must that color is in some obscure way related to locality, that starting in the north with man as a fine skinned blond, we find him to pass through every intermediate shade to extreme or deep black, passing successively light yellow, yellow, deep yellow or coppery, light brown, brown and dark brown to light black, the farther south we go the black even differing in degree. We can arrive at but one conclusion relative thereto, and that is that color must subservise some good purpose in man's protection. Most of the great things that have been done in the world have been by the men of the north, the fair white man, but, alas, in doing them he and his progeny are very apt to perish. How few descendants can be found of great soldiers, travelers, discoverers, inventors or poets?

The higher and more enlightened classes in the communities, the producers and assimilators of new ideas have repeatedly in the course of history been swept away or decimated. Thus the noble Greek race which was long-headed and largely blond has now but few and doubtful representatives. The Ostrogoths, a people evidently of great capacities, almost wholly perished. The noble strains of the Irish perished or emigrated in the seventeenth century and nowadays in the cities of France and Central Europe the same class is found melting away to give place to fresh strains of peasant blood.

Inquiring now as to the mode of operation whereby nature holds prominently before us her wise but as yet little understood color scheme, we find that she acts in one or two ways, direct or indirect, first selectively. Fritz Muller states: "That in southern Brazil several kinds of butterflies show an unmistakable preference for certain colors over others." He observed that they very often visited the brilliant red flowers of five or six genera of plants, but never the white or yellow of the same or other genera growing in the same garden. Mr. Doubleday states: "That the common white butterfly often flies down to a bit of *white* paper on the ground, no doubt mistaking it for one of its own species, or what is more probable, for a white flower, having become so colored by exclusively visiting this color of flower."

In fishes in many species the males while young resemble the females in color, but when adult become more brilliant and retain their color, throughout life. In other species the males become brighter than the females and otherwise more highly ornamented, during

the season of love, this of course relating exclusively to sexual selection, but nevertheless perpetuating the highest forms.

Among snakes the female rattler of our own country can readily be distinguished from the male by having more lurid yellow about its whole body, likewise the male English viper is more distinctly defined than the female in regard to color. With many lizards the sexes differ slightly in color, the tints and stripes of the males being brighter and more distinctly defined than in the females.

Audubon, the great naturalist and ornithologist, says: "That he does not doubt that the female bird deliberately chooses her mate." Speaking of a woodpecker, he says, "the hen is followed by a half-dozen gay suitors, who continue performing strange antics until a marked preference is shown for one, by the deliberate choosing of the female in which color plays so prominent a role, it is plain to see that the stronger, more vigorous and higher type will prevail."

In this way is color protective, but it is only one of the many ways, for there is another and no less useful and important phase of animal existence whereby color is made to fulfil its protective sway, and that is where various creatures, birds, butterflies, caterpillars, etc., find protection from their respective enemies, by becoming colored green or otherwise, in exact imitation of their surroundings. Those individuals succeeding best in protecting themselves in this manner being the favored ones. Many instances of this fact might be given, but there is still another, one that concerns us most as physicians, viz.: That the external parasites infesting man and animals, have been found in each case to be specifically distinct. Charles Darwin, having investigated this subject thoroughly, being convinced that this connection is correlative with color. I was told on the best authority that when our American Army went to Porto Rico, the common house fly went with them in swarms, hovering over and about the bodies of our American horses, but that they did not stray on the bodies of the Porto Rican cattle, and what is still more singular is the fact that when the American Army came home, the house fly came with it, leaving the island in a body. Various reasons were given for this fact, none of which seemed to answer. To my mind, the house fly found something on the bodies of our American horses and cattle which they *did not find on the bodies of the Porto Rican cattle*, something which correlates them, and Darwin says: "That this correlation is color." Again, it has been noticed and is a matter of lay experience that certain animals are immune to certain poisonous plants, and this, too, Darwin says: "Is correlated with color." Having proceeded with a rather lengthy argument, let us now turn our attention to disease and we shall find that each country, as indeed different parts of the same country in many instances, possesses distinct or individual diseases. That each country in its aboriginal period possessed diseases peculiar to itself which to-day are extinct, and that new diseases from time to time spring into existence in the on-march of civilization, I am firmly convinced. The reason for which facts are manifold, and the law discoverable, but owing to emigration, whereby countries have become peopled with the blood of all nations, this truth is not to-day so plainly evident, however true. In a former essay we found that owing to the variability of the individual, the manifestations of disease must like-

wise vary, that the same medicine given in one country produced different effects than when given in another as likewise in different parts of the same country. Now while distinct geographical zones undoubtedly exist whereby catarrh and pulmonary affections are found in contradistinction to intestinal and febrile, while again some have a larger and indeed an almost universal range, as some of our widespread flora and fauna, yet on the whole this is not generally so, therefore, we find disease circumscribed and limited and only occurring as an accident in other situations and seldom or never spreading. As an instance, I would cite "leprosy." We find that it occurs in Iceland, Norway and Sweden, in parts of Russia, and only in certain provinces in Spain and Portugal, while the disease appears to have prevailed in Egypt even so far back as 3000—4000 B.C., and both in India and China the affection was also known many centuries before the Christian Era. The old Greek and Roman physicians were perfectly familiar with its manifestations. It is likewise common in the Sandwich and other islands of the Pacific. I have chosen leprosy because of its widespread distribution and yet to prove it an individual disease, that is, having its natural limitations, geographical, racial and physical, for if we can find one place on the habitable globe where leprosy has not spread, although introduced, we cannot but consider our argument as proven. Either the United States or Great Britain proves the point, for although we have cases of leprosy in almost every part of the United States, it does not spread. Dr. L. D. Buckley at a meeting of the American Climatological Association, a few years ago proved conclusively that *not a single case of acquired leprosy has occurred in New York City, showing, of course, that all the cases are imported.* One fact the leprosy commission under congressional favor overlooked being one of the most vital, and that was *who the cases were.* I grant you boldly that every American case of leprosy to-day was either imported or occurs among those having a racial leprosy ancestry, not necessarily affected, but liable to be infected, although resident here, but, Dr. Buckley seems to even disprove that fact, claiming that it is not acquired here regardless of ancestry. But we find more for inquiring closely into the subject, we find that residence in the United States or Great Britain is *actually curative of the disease.*

Let us take another disease, say yellow fever, and we find it to be prevalent in tropical and sub-tropical countries, occurring endemically in the West Indies and extending under suitable conditions into the southern states, occurring once or twice under suitable atmospheric condition and as an accident at Philadelphia, yet, no one will deny that yellow fever is a local or circumscribed disease.

Take the Madura foot disease, due to the presence of a mucedinous fungus which eats its way into the bones of the tarsus metatarsus and lower ends of the tibia and fibula, which in process of time tends to cause death by exhaustion, a disease peculiar to India and the North-eastern shores of the Persian Gulf. Has anyone here ever seen a case of Madura foot disease in his present practice? And why not? Simply because we do *not* have the fungus growth here, the exciting cause of the disease, and what is more should the fungus be imported here it could not thrive, because our atmosphere and soil conditions would not support its life growth. Take cholera. We are all familiar with how Koch went

to Egypt as chief of a commission sent out by the German Government to investigate the matter. Koch isolated a spirillum and concluded that it was the cause of the disease, afterward proving the same. We likewise know that cholera is for the most part epidemic, that is, that when once it starts it spreads rapidly. Cholera has been endemic in India from a remote period, but only within the present century, mark you, has it appeared in Europe and America, but the singular thing about Asiatic cholera, is that which proves conclusively that disease does possess a distinct individuality, for Koch found that the germ of the disease, the peculiar spirillum, has a home, which he found to be the delta of the Ganges. *To this region careful inquiry has always been able to trace epidemics of this disease.* But you will answer, that there is no dispute that disease possesses a distinct individuality, there is no dispute that it has its natural limitations. We grant you that it is circumscribed and self-limited geographically and physically, but what has this to do with color, or the so-called races of man? Everything and nothing. Everything inasmuch as the black man is immune to certain diseases affecting the white, and vice versa. Everything in so far as all classes and conditions, except the Jew, fall before the dread germ of tuberculosis, and nothing in so far as all men are equal heirs to some disease. In a recent report of the Surgeon General of the Army to the Secretary of War, we find written: "Yellow fever and malarial fever are conveyed *always and only by the bite of the mosquito.*" Referring to the works of a prominent authority on the subjects mentioned we find firstly that yellow fever occurs in our southern states only in summer or during the hot season of summer or early autumn. Secondly, we find that it is a disease of the seacoast and rarely prevails in regions with an elevation of 1,000 feet and above. In malaria we find another exemplification of the same law. The altitudinal range being from 1,000 to 2,500 feet for different localities and countries, above which, as in yellow fever, no cases are to be found. The same fact being noted where squadrons lay a short distance from shore, while the land troops are suffering severely. But the mosquito explains it all, seeing that her natural habitat is circumscribed and limited, and what is true of the mosquito is likewise true of all disease producing organisms. Now the mosquito is a parasite belonging to a certain species and we find that it is selective, extending to the darker races of man at least a certain degree of immunity. In this way is color protective, for naturalists say that each animal species has its distinct parasite, and Darwin says: "It is correlated with color."

Having viewed the law let us now see in how far our theory is self-supportive. Each disease possessing a distinct individuality and being circumscribed and limited in geographical distribution, it becomes but natural to inquire whether what has been said of yellow fever and malaria can likewise be said for other and no less important affections. Believing as we necessarily must that all diseases arising without the body are due to some extraneous or foreign substance introduced, generally recognized as a poison, as that direct from serpents, etc., or due to germs or what not capable of manufacturing a poison, viz., the toxin, and recognizing that in all or nearly all cases, the same are possessed of a life history, and further that in each external conditions of food, heat, moisture, etc., is imperative, and likewise that as germs are in themselves distinct, so do their

external requirements vary, it becomes at once apparent that from the very nature of these requirements which undoubtedly differ for each germ, disease must possess certain geographical zones or localities best suited to their growth, in this respect perhaps following the same laws of distribution as the flora and fauna of a country having a local peculiarity or individuality correlated to all else animate and inanimate, believing likewise that germs being for the most part vegetable organisms, are divisible into genera, species and varieties, with varying degrees of virulence and each choosing by preference that human individuality most susceptible to its influence, each being a parasite it becomes all the more easy of comprehension why the same disease varies even in members of the same family, no two individuals being exactly alike. But we must not make the fatal mistake in supposing that because of its parasitic nature and because of being divisible into species and varieties, or in short following the rule of all organisms, that, therefore, distinct and abrupt lines of demarkation will exist. On the contrary as before stated nature draws no such lines, and as one color zone becomes almost imperceptibly blended into another so does disease.

We have noticed that according to the best naturalists, differences exist in the color of almost the whole of nature, the sea-shore from more elevated tracts. We have noticed that the same is true in a north and south direction. We have learned that disease not only possesses a distinct individuality, but that it is likewise circumscribed and limited in locality, one disease being confined to the lowlands, another to the highlands. We have found that disease is parasitic. Naturalists tell us that each organism, vegetable and animal, has it destroying parasite, and Darwin, tells us: "Each is correlated with color."

The Pasteur Preventive Treatment of Rabies is now given by the New York Health Department at its Research Laboratory at the foot of East Sixteenth Street. The virus is also sent out mixed with a preservative daily by a special delivery to physicians, to be administered at the homes of patients. The latter method has been found to give as good results as when administered in the laboratory. Not more than two days should elapse between the mailing of the virus and its injection into the patient. The course of treatment lasts from two to three weeks. It is strongly recommended that wounds inflicted by rabid or suspected animals be thoroughly cauterized with fuming nitric acid or if possible with the actual cautery. The wound should also be immediately washed out. Animals suspected of rabies should be securely chained and kept for eight days under observation, during which time, if rabies exist, the disease will surely develop. If the animal is killed the carcass should be sent to the laboratory for diagnosis. The routine is to make an examination of smears and stained sections of the brain tissue, and also to make animal inoculation. By the former method a positive diagnosis may be made in from 36 to 48 hours. Failure to find characteristic lesions does not however exclude rabies. In the event of such failure the animals inoculated are relied upon for diagnosis, which usually requires from eight to eighteen days. In sending animals from a distance the entire body, if small, should go; if this is impossible, the head alone should be sent—securely fastened in a box and packed with much ice and sawdust; the whole to be shipped in a larger box.

THE LOGICAL BASIS OF THERAPEUTIC SCEPTICISM.

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THE growth within recent years of such faith-cure fads as Christian Science, Osteopathy, and Dowieism, are convincing evidence of increasing scepticism in the public mind against rational therapeutics. The belief in drugs is fading into a belief in miracles. Multitudes are abandoning the doctor for the mysticism of the healer and giving up their faith in naturalism for allegiance to the supernatural. This, to medical men, from a financial as well as from a humanitarian standpoint, is rather discouraging. It is certainly worth our while to give it some careful attention in order to learn its cause and see if some means could not be adopted that would promise its arrest. Every family converted to one or other of the new systems is a family lost to the medical profession and a serious cut into the income of some practicing physician. In this way millions of dollars are lost every year and thousands of lives sacrificed. It is useless to protest against this change in public opinion and quite as useless to invoke the fetish of legislation to try and stop it. Moore wisely said that:

"Faith, fanatic faith, once wedded fast to some dear falsehood,
Hugs it to the last."

The great masses of men seldom, as a rule, accept any profound subject on any other basis than that of faith. They have neither the time nor the inclination to make a thorough study of deep problems. They never accepted drug treatment except as a matter of faith. They have never had any rational conception of how drugs cured, but have clung to the doctor as a matter of course, because they had been taught to believe that it was the right thing to do. When they give him up it is because some one has convinced them that drugs cannot cure. The conviction is usually based on the most flimsy ground but it is satisfactory to them and that is enough. When sickness overtakes them, after the establishment of this sceptical frame of mind, their only refuge is the modernized forms of charms and incantations. To a healthy mind a system that is mysterious and incomprehensible is one that has no attractions, but to a diseased or infirm mind the more unreasonable and the more incomprehensible a statement is the more attractive it becomes. It is interpreted as being so grand, so magnificent in its proportions that it transcends their mental grasp. When scepticism is combined with ignorance charlatans find a rich mine of gullibility on which to work.

But what is the foundation of public scepticism in this matter of drugs? There surely must be something upon which the opponents of scientific therapy are able to erect a plausible theory of attack. As every successful attack on the established faith of a multitude is one that arouses fear we might expect in this instance that an appeal would be made to this weak point by those opposed to drugs. In actual fact we find this to be the case. Every enemy of drugs uses the same kind of argument and repeats the same cry. It is always the cry of "Poison." For all time the masses have held as an article of supreme faith that a poison is a poison through and through, that no matter how small the dose it still remains poisonous in degree, and that its minute ill effects accumulate in the system until perceptible evil results occur, however infinitesimal the amount taken. It is likewise a tenet of this ignorant faith that the evil influences of small doses of

drugs scar the system so deeply that the effect is felt through unborn generations. It should not be necessary to tell educated medical men that such a doctrine as this never has had the slightest iota of evidence to support it. Nor should it be necessary to inform them that every speck of the evidence of modern science that can be collected, emphatically negatives any such assumption. The belief that it is unlucky to see the new moon for the first time over the left shoulder is precisely of a piece with the usual ignorant doctrine of the nature of poisons. Kobert, who as a toxicologist, is outranked by none, tells us in his book on "Practical Toxicology," that "for us no substances are 'poisons in themselves,' and that it is only when the particulars are known that we are able to say, in any given case, whether the substance involved can be classed as a poison or not." (P. 3.) On the next page, he tells us that "All poisons, even the most powerful, may be given in doses so small as to have *no toxic action*. Starting from this *innocuous* amount and gradually increasing it, we reach first the medicinal dose, viz.; a quantity which under certain conditions, has a beneficial action upon the sick." The fact is that no substance, however deadly it may be in an overdose, is in the slightest degree injurious if the dose is small enough. The poisonousness of every substance is a function of its dose, belongs to that dose and has no earthly existence outside that dose. If this were not true such a thing as living on this earth would be impossible. Throughout eons of ages living things have been incessantly subject, without a single moment's intermission, to the action of substances that in increased amounts would have killed them. Our food, our water, the very air we breathe is laden with substances that are deadly poisons, if taken in toxic amounts. Our own bodies are so constructed that substances necessary to life and health would kill with the utmost promptitude if suddenly introduced unchanged to another part of our body than that in which they are normally found. That which would be a poison to the organism if injected into the blood would act as a food if introduced into the stomach. Wholesome food, by the very act of digestion, is converted into substances that are highly toxic. Toxic substances, by the same act of digestion, are converted into substances that are perfectly harmless. Substances that are injurious or even deadly to one form of life constitute the food of another form. Even among human beings there are people so constituted that certain kinds of food that nourish most people will make them violently ill. The toxins of every form of disease are but forms of albumin and by digestion can be changed into life-giving peptones to nourish our bodies. They are products made from food stuffs by germs and are convertible back into food stuffs again. The deadly abrin, of *Abrus precatorius*, is digestible into peptone as is also the ricin of the seed of *Ricinus communis*, and the venom of the snake. Toxic substances, in comparison with which corrosive sublimate or arsenic are mild, turn out to be kindred chemicals to the basic substances of our own bodies, and that by the magic of metabolism are reconvertible into wholesome foods. Prof. Brunton, in his Lectures on the Action of Medicines, tells us that: "We now know that the juices of various glands when injected directly into the blood will cause coagulation and will kill an animal as quickly as a rifle bullet, yet these same juices when they enter the blood from the glands in the normal way, not

too much at one time, tend to preserve the balance of the body and to prevent disease." (P. 51.) Medical research is rapidly showing us that our bodies contain a multitude of ferments or enzymes, by which the successive steps in the digestion and assimilation of food are possible. They exist in the mouth, in the stomach, in the intestines, in the various glands and organs of our bodies and in the blood. Allbutt, in his *System of Medicine*, tells us that: "In the case of enzymes, such as pepsin and invertin, we must carefully distinguish between their fermentative and toxic actions. When injected into the animal body they produce rise of temperature, general disturbances and death, acting not by means of fermentation, but of direct poisons." (Vol. I, p. 526.) Oppenheimer, in his work on "Ferments and Their Actions," tells us that "Pepsin, rennet, invertase, diastase, emulsin and myrosin, all had a toxic action." (P. 66.) We learn from a recent number of *Science* that "The injection of bile can cause tetanus as well as coma." (April 14, 1905, p. 582.) Brunton, in his "Lectures on the Action of Medicines," tells us that: "The saliva in some men is almost as poisonous as the venom of a serpent." (P. 53.) Every student of physiology is taught that potassium sulpho-cyanide is a normal constituent of human saliva and is even found in milk and urine. Much speculation has been pursued as to the meaning of the presence of this poison in these secretions. Pfluger and Foster, two of the most renowned physiologists in the world, think that the principal properties of living protoplasm are due to the presence therein of the highly poisonous radical of prussic acid and that the presence of the sulpho-cyanides in saliva, milk and urine in varying and changeable proportions are but the overflow of the cyanogen radical common to all living proteid. If they are correct, (and where will we find higher authority?) then the very foundations of our being are laid amid the most deadly of poisons. In every human body there is always present almost as vast a collection of poisons as is found in the average poison-case of a city drug store. Some of them, too, like the phosphorus of the bones and blood, or the hydrochloric acid of the stomach, are the identical substances found in such closets and that are never sold to customers without the characteristic skull and cross bones on the labels that accompany them. Even as dangerous a one as arsenic is now known to be a normal constituent of our bodies and constantly present in the food we eat and the water we drink.

In view of facts like these is not the present hysterical toxiphobia, that has become so common as to be considered a veritable epidemic, in reality a senseless craze? Does the administration of poisons as medicines injure the public? If they are poisons *per se* there can be no questioning the verdict and medical practice stands impeached as a huge blunder and an inexcusable crime. If a poison is a poison in any dose and is only less poisonous in proportion to its reduction in dose then the practice of giving drugs is wholly wrong. On the other hand if a poison is only poisonous within a certain limit of its power, beneficial by stimulation within another limit, and wholly inappreciable in its effects under still greater dilution, then there is profound wisdom in the giving of drugs to the ailing. The latest researches in chemistry have taught us that the toxicity of every substance is due to a certain electrification of its ions. Like other physical forces the behavior toward the living body is never that of merely lessening in-

jury with lessening dose. The behavior of the ions is more like the behavior of heat. At the point of great power heat is deadly. It destroys and rends the tissues. At a point of lower power it stimulates the tissues to increased activity. At a still lower point it forms the normal condition of life. Its total absence would mean death. It is highly probable that the electric charges of the ions behave in a somewhat similar manner. In too great power destruction results. In a lowered power stimulation occurs. In a still lower power the condition of normal being is found. In the total absence life would be impossible. It is thus seen that death hedges in life at both extremes. Human physiology has not advanced us as far in knowledge of this kind as plant physiology has, and for obvious reasons. The verdict of plant physiology in regard to poisons is very emphatic. No one objects to experiments upon plants with poisons. Pfeiffer, in his "Physiology of Plants" tells us that "Small doses of the most varied poisons increase growth, respiration, and the production of heat." (Ewart's translation, Vol. I, p. 264.) On the same page we are told that "when sufficiently attenuated a poison may induce reactions which are either innocuous or even of use to the protoplasm. This stimulating action of poisons is of equal importance to their fatally injurious effect when sufficiently concentrated." Frank and Krueger have shown that "if potato plants are properly supplied with copper the plants are hardier, yield a larger crop, and live longer than they otherwise would." (*Amer. Jour. of Pharmacy*, June, 1905, p. 270). If we can judge from the moderate use of tobacco by human beings we might conclude that poisons, when not used in quantities sufficient to constitute an abuse, are not injurious. The late Prof. Huxley said: "There is no more harm in a pipe than there is in a cup of tea. You may poison yourself by drinking too much tea or kill yourself by eating too many beefsteaks." Some of those who have lived beyond the century mark have been constant users of tobacco. When we consider the countless millions who are constant users of tea, coffee, chocolate, and other such beverages, we find no evidence of the moderate use of poisonous substances doing any harm. The active principle of coffee when injected subcutaneously produces symptoms like those of strychnine, yet Cushny informs us that in small doses "the only effects to be observed are a brightening of the intellectual faculties and an increased capacity for mental and physical work." (*Pharmacol. and Therapeut.*, 3rd ed., p. 246.) Alcohol in some form is used by nearly every race and people with not the slightest signs of injury except when consumed in amounts transcending simple stimulation.

Deplorable as is the public scepticism toward drugs it is by no means as bad as when manifested by members of the medical profession. It seems scarcely credible that they should entertain views very much of a piece with those held by the illiterate public. What is, perhaps, still more deplorable is the complete unconsciousness shown by them as to the illogicality of their position. When a physician who is at the head of a department of health can, officially, publish the following expression of opinion it forces us to judge leniently of the mental idiosyncrasies of the masses: "Self-destruction is the final result of all these unnatural ingredients introduced into the human economy. If in large doses death is immediate and self-apparent, while

in small doses death is delayed, but if not in existing generations an immediate result then in the generations to come it figures as a remote result." What a horrible impeachment of medical science this would be if true. He was writing of some of the mildest of medicinal substances, of substances that nature has put into fruit and other foods, of substances that multitudes have been using generation after generation for millenniums of time, of substances that medical men administer constantly in amounts a hundred fold more than was being used in the way he sought to condemn. What he says about the generations to come is rich indeed and it would be exceedingly interesting to discover where he got any evidence on the matter. This medical man evidently does not know that there is not a single drug of the *materia medica* that need do the slightest particle of harm to the most delicate human being. He seems to be imbued with that pernicious, but unfortunately popular superstition, that looks upon drugs as toxic *per se*. He imagines that any dose, however minute, of a toxic substance must injure the system in proportion to the amount imbibed. It has never occurred to him that every substance can injure and every substance can benefit in proportion to its dosage. He has never stopped to consider the fact that one of the most distinct peculiarities of protoplasm is its power of gaining added resisting power to every form of energy that is near to a point that could injure it. As a practicing physician he fails to see that his own belief cuts the foundation from under him and would make of him a criminal, if it was true. If mild drugs are the dangerous things that some medical men seem to consider them then they are taking a terrible responsibility in prescribing them. To claim this is to make the use of really potent drugs reprehensible in the extreme. They may try to soothe their consciences with the belief that while beneficial to the ailing they are injurious to the well. Where, however, is there the slightest evidence of so irrational a proposition. Are the laws of nature suspended during illness so that poison, in their sense of the word poison, ceases to be such, for the benefit of the ailing? In a high fever it may take more cold to harm a patient than would harm a well person but the action of the cold is precisely the same toward both. The dose is altered by the peculiar conditions. In the same sense it may take more or less of a given poison to affect a sick than a well person but the action will be the same in kind in both instances. Conditions have altered the dose. The overheated body, in health, feels the soothing influence of properly adjusted cold as much as does the fever-racked patient. The stimulating and strengthening action of cold is likewise alike to both. Any person who entertains the opinion that certain kinds of substances are inherently destructive in all doses have an exceedingly narrow conception of the world and its contents. He can have no notion of the continuity of things or of those grand laws that bind the universe in organic unity. It never occurs to such a one that foods, medicines and poisons possess no lines of demarcation that can enable us to say with unerring certainty which is which. Between water and the most deadly poison known there is nothing can be found but that has the power to injure the body in some degree by abuse. An excess of any single food principle will bring derangement and toxic symptoms. An excess of inert water will do the same. An excess of salt will kill. The oxygen of the air, which makes breathing and life possible, only needs to

be forced into the circulation in double the normal supply to render death certain. As we have already pointed out the enzymes by whose aid digestion of food is possible and without which assimilation could not occur are all found to be poisons. Without poisons life, as we know it, could not possibly exist on our planet. How preposterous then becomes the claim that because a substance is toxic in some degree that it must therefore be avoided. There is scarcely a single article we eat that does not contain substances every whit as toxic as the substances which the gentleman we have quoted condemned so strongly. Every particle of fruit we eat, every spice we partake of, all the vinegar we consume contain substances that are equal and some of them superior in poisonousness. Sanitary progress is hampered at every turn by the fear that is engendered by superstition. The plague could not be stopped at Bombay because educated Parsees object to both cremation and burial. Filth diseases of various kinds are scattered by the Pilgrims to Mecca but no one dares to challenge the beliefs of the Mohammedans. Educated men in our own country object to the use of sulphate of copper for purifying typhoid polluted water because of their superstitious fear of the effects of this mildly toxic substance. They cannot get out of their minds the belief that a poison is a poison whatever the dose. Hundreds whose lives might be saved are sacrificed to this unfounded notion which everybody's experience is daily and hourly proving to be false. In spite of the proof to the contrary the superstition clings. Facts make no impression on minds wed to antiquated notions. In Allbutt's "System of Medicine," Prof. Allbutt, himself, tells us that, "As an industrial disease poisoning is practically unknown in the copper works on Tyneside; nor does occupation in the copper works appreciably influence any disease that the individual may subsequently suffer from. Occasionally a metallic taste in the mouth and colic are complained of." Again he tells us of a European village where, "for the last four hundred years has this industry been carried on there; sons succeeding their fathers, so that an ancestral integrity has been established. In spite of their long hours of toil in an unhealthy atmosphere, of green lines on their teeth, and green hair, the men, though not robust, are healthy, the average age at death being 60. Not only is the metal found in their secretions, but long after death their bones when raked up are green." (Vol. III, p. 937.) How supremely ridiculous American toxiphobia would appear to be to those people so far as its application to copper is concerned. In a recent number of *Science*, Dr. Geo. T. Moore says: "Strange as it may seem, there does not exist an authentic case of copper poisoning either in this country or abroad. At the congress at Brussels, where this subject was discussed for more than six months and which was attended by the strongest opponents of copper there was not a single instance of copper poisoning which could be brought forward that would stand the scrutiny of the congress." (April 21, 1905, p. 622.) Why then are so many people bitterly opposed to the use of minute amounts of copper in the public water supplies when it is an established fact that in almost infinitesimal amounts it can kill typhoid germs and save whole communities from the ravages of typhoid fever? There is but one explanation. The superstition that a substance that is at all poisonous is poisonous in a degree proportionate to its quantity and that the repeated ill effects of a multitude of doses multiply themselves not only in the individual that takes

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Whether any inhabited location shall be an Eden of health and morality, or a slum of mangy infections and brutality depends on the proclivities of the owners and tenants. Evil and improvidence are expensive. It involves immense and wasteful cost to borough or county, city or state,—to generous-hearted charity and to frugal-handed taxpayers, to meet with cash the continuous drain of treasure resulting from slum existence. It would be supremely cheaper and better if special gifts and appropriations were made to banish all slums from endangered locations by the purchase of their sites, to tear down their degraded habitations, fill up infectious cellars and privies with fresh earth, transform areas of effluvium and distempers into sanatory breathing places and parks, and vest these forever to the care and control of the local government for the perpetual defence of the people.

The idle and shiftless who shirk from frugal toil and passively sit in the morbid dreams of poverty; the dissolute and vicious who freeboot the unwary and the defenseless by cunning, by stealth or brute violence, these constitute a complex atavistic class that naturally gravitate to meaner quarters or to slums, and systematically absorb all that they can glean from benevolence and the public treasury in the way of personal profit and support.

It is the nature and policy of this grade of people to complacently depend on organized public charities in the emergencies of need, sickness and infirmities. They encumber the hospitals with their diseases, fill up infirmaries and homes for the indigent on appeal, or drift into the shelter of reformatories and prisons as a reward for misdemeanors and crimes—in either case obtaining at public expense better homes than they left behind—in most cases consuming and therefore wasting honest fruits of the toil and economy of the industrious and frugal who are taxed to maintain these increasing institutions.

Munificent provision for the sustenance of the chronic indolent and thriftless, for dispensary service and hospital care of the incessant cachexias and contagions from the slum quarters and districts, deplorably tend to pauperize yet more the multitudes who are disposed to stoically drift along with indifferent ease of mind and body, rather than honorably strive to advance their fortunes and morals by self-supporting toil. Slums usually nest in the midst of surrounding population, they constitute centres of despoiled air which diffuses its poisons to adjacent communities, else the hazard from their taint and fester would be greatly reduced. Enlarging the benevolent donations, multiplying the state appropriations of public money for dispensaries and hospitals will never sponge out from the community or state the blot of slums, never reduce their mistaken growth nor arrest the propagation of their diseases and vices.

In Pennsylvania, as in other commonwealths, the benevolence and taxation in the line of charity are over-

doing their true province of helpfulness by pauperizing the thriftless and demoralizing the profligate. The gifts of philanthropists have run too much in the direction of foster-charity. Casting good seed into slums is like sowing wheat upon mud and rocks. Reform and relief for slums naturally last but for the length of the day; relapse follows the setting of the sun. The leopard does not change his spots nor the skunk renounce his stench. Preaching the Gospel to habitués of slums never abrogates natural proclivity or numbers. No Board of Health can purify a slum or suppress its degenerate malaria by a summer-day visit with whitewash brush and routine orders to "clean up." Nothing can clean up a slum except its complete extinction.

The filth and degradation, the hardened bestial senses, the instinct for crime and brutality engendered by slums make them physical, moral, mortal siroccos to the entire community. Their narrow courts and gutters are the ripe avenues of fetid poisoned air; their doors open to repositories of rancid dirtiness, congestions of domestic chaos, hard-faced character. Their chambers wanton with barbarian indecency without the veil of remorse or shame; their social morale is the natural forcing school for low thieves, thugs, toughs, pick-pockets, assaulters of women, bawdy prostitution—a class of criminality with which our courts and prisons are constantly encumbered.

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strive to help themselves in honest ways.

But in the interests of public hygiene and social order slums should be displaced by public squares and open-air areas among the surrounding laboring and business classes, whose health and availability are of highest importance. Money appropriated toward this sanatory transformation must directly obviate the encroaching needs for costly charities and hospitals, would enhance the comfort and prosperity of the industrious, defend the earnings and savings of bread-winners from loss through prejudiced health and rigid taxation, would elevate beneficent donations and assessments for the public welfare to their highest and most substantial plane of usefulness. The demoralized slum element everywhere should be displaced by the legal condemnation and sanatory pre-emption of their degraded quarters; should be compelled to "move on" and out into the open country, or disperse, or raise itself to a sphere of respectable livelihood and home-keeping which would make of this class a better and happier people.

Energy exercised in the development of self-help is always superior to the passive dependence on the helping hands of others. On the "Future of the Red Man," in the *Forum*, Simon Pokagon, a full-blooded Indian, last chief of the Potawatomie band, questioned the wisdom of our national government in adopting the "ration system under which the Indians are fed on reservations." In his intelligent view the government should provide the Indians with something to do, even if it should fail at first to be self-supporting, the aim being to develop habits of industry and respectable comfort. On a similar principle, instead of endlessly appropriating vast sums to maintain hospitals and other charities wherein slums may empty their incessantly diseased, their dissipated and slothful, for regulation rations and care, it would be truer wisdom to invest half the money in the purchase and equipment of land and other industrial plants, where the slum element, tramps, mendicants, homeless idlers, vagabonds, could be colonized under systematic management, to work their way to better habits, sanitary states of health and morals, more respectable and worthy expectations.

Multiplying free accommodations for the care of the "indigent and needy," only tends to multiply the number of voluntary dependents eager to fill up these benevolent institutions and share their gratuities—so the second state is no better than the first, *ad infinitum*. Voluntary pauperism is a step in the giant stride to the socialism and communism that have grown envious of the fruits of others' prosperity. Among certain classes the ambition to work for a livelihood is declining while the ambition to share the livelihood of others is correspondingly pronounced. Labor is daily growing more capricious and reluctant as the army of beneficiaries and deadheads grows larger.

Moreover, hospitals and charity corporations are becoming clamorous monopolies, not only absorbing immense gifts and bequests, but consuming large funds derived from the state by political pull on legislators, asking for princely appropriations with which to fatten pecuniary interests and to expand the popular prestige of their respective institutions. Furthermore, through these means, these expanding hospitals and their favored staffs steadily draw into their seines a drift of well-to-do patrons, some free and some fully remunerative, who, on principles of right and fairness, should contribute their patronage to worthy private medical practitioners for

their deserved encouragement and support. If hospital staffs and corporations are allowed to monopolize medical and surgical practice throughout this country, where every qualified citizen is entitled to equal rights to earn an honorable livelihood, let it be upon a basis of merit instead of buncombe sentiment and legislative partiality. The incomes, from medical practice in general are shrinking yearly, so that the profession finds it severely more difficult to maintain even liberal livelihood than in former years, before the abuse of dispensary and hospital service indoor and outdoor had grown so enormous. It manifestly savors of fraud and injustice for the state to appropriate large sums of the people's taxes for the elaborate maintenance of monopolies, conducted under the name and garb of "sweet charity," that in reality put into the hands of a few hospital attaches the power and accommodations to severely curtail the patronage and livelihood of the great rank and file of medical practitioners.

Prof. Wilson, of Jefferson College Hospital staff, is reported as saying: "It is a notorious fact that very many people who are abundantly able to pay for medical relief go to public dispensaries and obtain treatment free of charge. The result is detrimental to the best interests of the public in the facts that these people are willing to personate themselves as paupers for free medical attendance, and that it deprives medical men, particularly young medical men, of their legitimate sources of income."

As a natural result of the cheapening demoralization of free hospital dispensary competition, the public has been trained to consider the medical profession with lessened appreciation. In the important matter of adequate fees, a large proportion of competent private physicians are under the necessity of rendering their professional services at such barely nominal charges as to impress upon themselves and guild the unwelcome stamp of relative poverty, where the comforts and consolations of thrift are fully merited as a reasonable compensation for heroic life-work.

It is true that valuable hospitals are conducted in connection with medical colleges; but the number of patients who flock to these for free services always greatly exceeds what can be utilized for the instruction of students. There is always ample reason for a medical college to have its own hospital, but it is daily more evident that there should be reasonable limitations to the extension of their monopoly outside. Six medical college hospitals and twenty other hospitals in Philadelphia have recently obtained their annual grants of state money to reinforce their luxuriant support. My interest in some analysis of these proteges of public and private beneficence has led me to visit some of them. Whether coming from slum or hovel, accepted patients become grantees from the moment they gain admittance to the excellent and often elegant appointments. Having ambitiously secured a popular draft on the public funds, hospital corporations and staffs are easily enabled to outdo the general practitioner in reaching and obtaining also a clientele of good-pay patients for whom hospitals were not professedly designed, though often privately planned as enterprises for profits under the guise of charity and need. Contemplating the rate at which hospitals have cropped out into incorporated operation these later years, it would seem as though hospital syndicates or hospital promoters have gotten into vogue for the disguised object of investment and dividends,

wrought out of contributions from charitable people whose sympathies are reached and legislative appropriations obtained through political practice.

After eliminating the classes of persons able to make more or less compensation for their medical services, there always yet remain an abundance of cases among the actually poor for the instruction of the few hundred medical graduates annually—"for the poor ye have always." While slum tenements are continued for the crowding of degraded humanity into sub-basements and attic stories, there will continue the tidal flow of poverty and suffering to the dispensary and hospital for free treatment. It is the perverting policy of augmenting to all possible extent the numbers of the pauper personating class, by powerful hospital corporations, that debars private practitioners, after graduation, from adequate opportunities for obtaining the necessary patronage to which they may devote earnest study and thus also earn the encouraging rewards of talent well applied and duty well done. Medical teaching, medical books, expensive courses of study and medical diplomas, pharmaceutical products, surgical instruments and appliances all have very limited value to physicians unless they have medical practice and a fair chance to profitably pursue its offices and honors. Work that sustains slums with enlarging gratuities, catering to expanding slum needs, encouraging slum imitators by the demoralizations of unlimited indoor and outdoor service is withal not an exalting accomplishment. It powerfully tends to dispel the moral sense of personal responsibility and rolls backwards the wheels of social integrity and progress.

Without resort to deduction, it is a question of the hour, and needs to be understood that the diseased, the thriftless, and vicious elements pertaining to slum spheres not only beget hospitals, infirmaries and reformatories, but through the maintenance of these there is involved perpetuity of increasing expenses and injustice bearing adversely upon all classes of good citizens. Medical service in aid of the poor is made the shibboleth of the *raison d'être* for establishing hospitals. But by the systematic abuse of hospital purpose, the lesser evil becomes the greater in augmented costs, pauperization of the public, development of dispensary monopoly in medical practice, and corresponding repression of the legitimate work and livelihood of general practitioners. If a quarter part of the money consumed and lost in the maintenance of these free institutions of free help and free medical treatment was practically applied in transforming infectious slum areas everywhere into hygienic Edens, the slum element steadily displaced and dispersed, hospital services honestly limited to the actual needy and unfortunate, then one-half of the hospitals that now eagerly clamor for state funds and private bequests might close their doors and retire their staffs, while the other half could comfortably moderate the expense of their existence to such a degree that legacies and state aid could be largely utilized for the promotion of more substantial and more enduring benefits for the whole people. Shall slums be diminished and Edens increased in our country?

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Dr. A. Rose, of New York, (*St. Louis Medical Review*, June 24 and July 1), has important articles on "Onomatology," which will be found of value to those interested in this subject. Dr. Rose is doing yeoman service in this direction.

THE VALUE OF THE MICROSCOPE IN DIAGNOSING LESIONS OF THE KIDNEY.

BY HENRY TAYLOR, M.D.

PART I.

THERE is no situation in medicine in which the microscope is of greater value than in urinary analysis. Few physicians will deny this fact, yet not many rely upon it in the diagnosis. The majority of physicians are content to find albumin and casts, so that with them microscopical diagnosis is of secondary value.

Yet no diseases present greater confusion than so-called "Bright's" in its various forms and this confusion of classification tends to confuse the diagnostician. We will be able to keep matters clear in our minds if we remember the anatomy of the kidney; it is a compound tubular gland consisting of connective tissue which carries the blood vessels and epithelium. Such an organ being "interstitial" in character when it affects the epiparts so that an inflammation here is apt to be diffused right from its origin. The varieties depend largely on the degree with which each tissue is involved. Inflammation primarily begins in the connective tissue, being "interstitial" in character when it affects the epithelium it is "parenchymatous," the name depending on which changes are the more pronounced. Yet both forms of inflammation generally exist in each case. In consequence, many authorities divide primary inflammation of the kidney into three kinds—catarrhal, croupous, and suppurative, which for clinical purposes is better and clearer. In catarrhal (interstitial) nephritis the changes consist of edematous swelling and inflammatory infiltration of the connective tissue; swelling and granular cloudiness of the epithelium lining the tubules with its subsequent desquamation, with the production of pus-corpuscles in consequence. The blood vessels are distended with blood corpuscles while in the chronic form a new connective tissue forms which produces shrinkage or cirrhosis.

In croupous (parenchymatous) inflammation, the surface becomes partially or completely stripped of its epithelium, a albuminous or fibrinous exudate forming upon the surface, and there is considerable hyperemia of the blood vessels, with swelling and inflammatory infiltration of the connective tissue. The casts originate from a degeneration of the tubular epithelium and a coalescence of epithelia thus degenerated; this form may end either in hypertrophy of the kidney, due to an increase in the interstitial connective tissue, or in atrophy of circumscribed portions of the kidney, with more or less destruction of the epithelial tissue. The most intense variety of inflammation of the kidney (suppurative), which is similar to an abscess in other organs, has been considered to be a purely interstitial inflammation, from the belief that pus-corpuscles could only be formed from connective-tissue cells, but this is erroneous, and there is no doubt that the epithelia take an active part in the formation of pus. The blood vessels in the suppurative form soon become eliminated. When albumen is found, many physicians at once diagnose a nephritis, without any microscopical examination of the sediment; this is wrong for, not only may albumen, even in large quantities, be present without any pathological changes in the urinary organs, as, for instance, in the so-called "functional or essential albuminuria," but inflammation in other organs, as, the bladder or prostate gland, where pus-corpuscles are found in the urine, will produce al-

bumen; when the kidney may be perfectly healthy. The diagnosis of a nephritis should, therefore, never be made without the characteristic features of such an inflammation being present in the sediment; in fact, a diagnosis of any inflammation in the genito-urinary organs can never be made without the presence of pus-corpuscles in the urine; derived to a great degree from the epithelia themselves, the protoplasm of which becomes changed by endogenous new formation to inflammatory corpuscles, which later reach the surface of the epithelia and are carried along by the urine as pus-corpuscles; these pus-corpuscles invariably permit a diagnosis. Pus-corpuscles are granular, the nature of this granulation varying with the constitution of the individual; for example, coarsely granular, refractive, homogeneous corpuscles, without nuclei, show a first-class constitution; the more numerous these are the better is the constitution, for the coarse granulation is due to a large amount of living matter, and the less living matter present, the finer will be the granulation, and, therefore, the poorer the condition. Small granular pus-corpuscles, with one or more pale nuclei, indicate a broken-down condition. Now, should the different varieties of granulation, from the coarsely granular down to the very finely granular, be found, the conclusion is inevitable that we had an originally good constitution, weakened by disease. Shortly before death the pus-corpuscles break down completely, changing to granular, irregular masses. These facts will be found to be of invaluable aid in the prognosis of a given case, but care must be taken not to confound mucous corpuscles, which are always pale and finely granular, present in normal urine, with pus-corpuscles; for mucous corpuscles are normal products of the epithelia, and vary considerably in size and shape; they are useless in diagnosis excepting to recognize in their true value.

Catarrhal (interstitial or desquamative) nephritis, the mildest and most common form, may escape detection for years; here the microscopical examination of urine, made with a view of detecting other affections, will often lead to a diagnosis long before the clinical symptoms appear. For the examination of urine a power of four hundred and fifty or five hundred diameters should be used; a lower magnifying power being uncertain and a higher power not required. Pus-corpuscles in a urine, show that an inflammation exists somewhere in the genito-urinary tract, and the character of this inflammation can only be diagnosed by the epithelia; pus-corpuscles should be always taken as the standard from which the nature of the epithelia is judged, since these pus-corpuscles vary to a moderate degree in every case, being comparatively small in one case and comparatively large in another; thus kidney epithelia, the most important of all the epithelia in urine, are one-third larger than pus-corpuscles, so, if, with pus-corpuscles, a number of cuboidal bodies, one-third larger exist the diagnosis of a nephritis is plain, since these bodies are the kidney epithelia from the convoluted and narrow tubules. In rarer, and usually more severe, cases small columnar epithelia from the straight collecting tubules are found. Remember that kidney epithelia are never present in normal urine, but should not be diagnosed unless seen in moderate numbers, and associated with pus-corpuscles; it is their size which is the means of their identification, the presence or absence of a nucleus having no significance; casts are, generally, entirely absent in such cases, and if present are found in extremely small numbers, and then only hyaline in

character.

Catarrhal nephritis, acute, subacute, or chronic, can generally be diagnosed by the microscopical features. The presence of red blood corpuscles is the most important feature, for these will be seen in larger numbers only in an acute inflammation; the more red blood corpuscles, pus-corpuscles, and kidney epithelia present, the severer the case and the more certainty of an acute attack, while in chronic nephritis, red blood-globules are either entirely absent or present in very small numbers. Here, in chronic cases, are a varying number of small, glistening, highly refractive granules, partly lying free in smaller or larger groups, partly in the interior of pus-corpuscles and epithelia; these fat-globules or granules denote chronicity or commencing fatty degeneration. The presence of rust-brown needles or plates—crystals of hematoidin—is valuable aid to diagnosis; when conglomerated in variously sized masses, they usually lie free; when present in small size, they are often found in the pus-corpuscles and epithelia, denoting a previously existing hemorrhage, showing that the pathological process is not acute.

The diagnosis of subacute inflammations combine some features of both the acute and the chronic form—that is, a few red blood-globules, a few fat granules and globules, with a moderately good condition in the patient.

Sometimes in a nephritis larger pear-shaped, more irregular or globular epithelia from the pelvis of the kidney are found giving us the diagnosis of a pyelonephritis, and almost invariably still larger epithelia from the middle layers of the bladder, showing a catarrhal cystitis; in some cases in which a pronounced chronic nephritis is undoubtedly present, a large amount of salts, especially uric acid or phosphate, is found. As a badly diseased kidney can never void salts, probably only one kidney is affected.

The result of chronic catarrhal nephritis is always a shrinkage, a cirrhosis of the kidney, or the so-called "hobnail kidney"; a large amount of urine, with a continuously low specific gravity (1012, or less), absence of all salts, a small amount of albumen, pus-corpuscles, kidney epithelia, fat-globules, and a broken-down constitution, with small shreds of connective tissue found under the microscope. Here we may say that connective-tissue shreds are among the most important of all features found in urine, being quite common, and always seen in severer and more deeply-seated pathological processes, such as severe inflammation, cirrhosis, hemorrhage, traumata, atrophy, suppuration, and ulceration. When in a severe inflammatory process, epithelia are shed in large numbers, a certain amount of the surrounding connective tissue must be cast off in the urine in shreds of various sizes, and the severer the process, the more numerous and larger the shreds. Again, care must be taken not to mistake them for mucous shreds, which are paler, less refractive, and more regular. Connective tissue consists of bundles of varying sizes, fibrillary, and frequently finely granular.

Renal tuberculosis generally presents the symptoms of severe catarrhal nephritis, with a varying number of connective-tissue shreds, and with this the constitution is broken down, especially when tuberculosis exists in other parts of the body, so that a bacteriological examination for tubercle bacilli must always be enforced.

In croupous (parenchymatous) inflammation—a more serious process than the first—the amount of albumen is considerable, and under the microscope are seen

casts with the pus-corpuscles and kidney epithelia; in acute cases, blood-corpuscles are present in large numbers, sometimes justifying the diagnosis of a renal hemorrhage. The number of casts corresponds to the intensity of the inflammation, being most numerous in severe acute cases; the casts being in three distinct sizes according as to whether they come from the convoluted, narrow, or straight collecting tubules. Should the smallest variety of casts coming from the narrow tubules alone be found, the inflammation is comparatively mild, but if all three varieties are found, the largest coming from the straight collecting tubules, the process is serious. Remember that there are six varieties of casts, hyaline, epithelial, blood, granular, fatty, and waxy; the presence of these casts determines definitely the acuteness or chronicity of the inflammation, hyaline, epithelia, and blood-casts being found only in acute conditions, while granular, fatty, and waxy casts are seen in chronic cases. Hyaline and epithelial casts are usually quite numerous in acute croupous nephritis, while the presence of blood-casts depends upon renal hemorrhage. The more active the hemorrhage, the more blood-casts are seen, and, therefore, the more intense the affection, but, in milder hemorrhages these casts are filled with characteristic red blood-corpuscles, and have only little color; in severe hemorrhages the casts are crowded with disintegrated blood-corpuscles of a characteristic rust-brown.

Disintegrated epithelial casts never occur in acute cases, although in children they may be found when the inflammation is only a few weeks old; but in adults, they appear only after the affection has existed for a long time. Fatty casts mean fatty degeneration; here are the casts filled with fat granules and globules; these granules and globules are found in the pus-corpuscles and kidney epithelia, as well as lying free. Waxy casts of characteristic wavy, fluted contour and usually a yellowish color, with high refraction, denote a waxy degeneration of the kidney. The latter two varieties are secondary formations, but combinations of two, or even three, varieties are not rare, and blood-casts may be seen with epithelia, waxy casts filled with fat-globules, or granular casts with both fatty and waxy characters. Of course we must remember that in chronic nephritis both of the catarrhal and croupous variety, but especially in the latter, acute exacerbations may appear; then the features of both acuteness and chronicity are combined, and all six varieties of casts have been found in one specimen of urine. That these cases must be given a very doubtful prognosis is clear. A seventh variety of casts is described by some writers as "mucous casts," or "cylindroids,"—but these are accidental formations of mucous taking on the shape of a cast, and seen whenever mucous is present in the urine; easily differentiated from real casts by their pale, usually irregular outline and finely striated interior, and without pathological significance. Connective-tissue shreds can be found in croupous nephritis, in almost every case; small shreds only in the milder cases, large shreds in the severer forms; quite common in those acute cases which are accompanied by an acute hemorrhage, as well as in the chronic cases, in which a fatty or waxy degeneration has taken place. The outcome of a chronic croupous or parenchymatous nephritis is, first, the hypertrophy, and then the atrophy of the organ. The clinical features of atrophy are, a continuous low specific gravity (below 1012), large amount of albumen, absence of salts,

pus-corpuscles, kidney epithelia, fat-globules, and granular, fatty, or waxy casts, connective-tissue shreds, with a general break-down in health. In studying suppurative nephritis, abscess of the kidney, pyonephrosis, or surgical kidney, the most intense of all the inflammations of the kidney, we find either a number of small, disseminated foci of suppuration, or a large abscess, usually caused by staphylococci; here the microscopical features are the presence of an enormous number of pus-corpuscles, and many kidney epithelia, usually with a varying number of red blood-corpuscles, very numerous in acute abscesses; connective-tissue shreds are found, often in large numbers. Without such shreds, abscess of the kidney should never be diagnosed, since they alone show destruction of renal tissue. Epithelia from the pelvis of the kidney generally accompany the affection, and frequently casts are seen from a complicating croupous nephritis. If the abscess is acute, red blood-corpuscles are numerous; if chronic, they are scanty; but crystals of hematoidin, sometimes numerous and of large fat-globules, both in the kidney epithelia and pus-corpuscles, as well as lying free, are also numerous. Some authorities claim it is impossible to diagnose an abscess from the urine examination, yet such a diagnosis is comparatively easy if we remember the features enumerated above. An abscess need not burst; emigrated pus-corpuscles and the shedding of connective tissue are sufficient; in renal abscess epithelia, both from the convoluted and the straight collecting tubules, the latter often predominating, are frequently found. The number of pus-corpuscles seen must be large before diagnosis is justified. Abscess from the pelvis of the kidney is also common; here the predominating epithelia will be the characteristic pear-shaped epithelia from the pelvis, with a smaller number of kidney epithelia, the other features being similar to renal abscess. Abscesses not directly in the kidney substance, but pressing upon the kidney (perirenal abscesses), may also be diagnosed by peculiar changes which take place in the epithelia, consisting in the presence of a number of newly formed nuclei, or even pus-corpuscles, in the epithelia—so-called endogenous new formations, caused by the long-continued pressure from without.

Under this classification all varieties of renal inflammation are covered; it is true that other names than these may be used, but they are varieties of the above; inflammation of the glomeruli—the so-called "glomerulitis"—is described as a separate affection by some pathologists. It is not a separate disease, but always an accompanying feature of a nephritis, catarrhal or croupous. In the diagnosis of renal lesions come the anomalies of secretion; for example, there are persons who will pass large quantities of uric acid and oxalate of lime all their lives, suffering from lithemia and uric acid diathesis, while if oxalate of lime alone is voided in large quantities, it is an oxaluria. Such urine usually has a high specific gravity with many crystals and concretions of uric acid and oxalate of lime from the renal calyces and pelvis. Renal calculi frequently produce an inflammation of the pelvis of the kidney, a pyelitis, either slight in character, with an accompanying inflammation of the kidney, pyelonephritis, or severe, even causing abscesses of the pelvis and kidney, with all the symptoms of inflammation or suppuration, often producing a severe hemorrhage, the most frequent seat of hematuria being found in the pelvis of the kidney as a result of the concretions of uric acid or oxalate of

lime. The microscopical examination of urine may lead to the diagnosis of a renal tumor even before the clinical symptoms are suspected. Extremely large and numerous shreds of connective tissue, with pus-corpuscles and kidney epithelia, may point to a tumor without any clinical symptoms at all. The variety of renal sarcoma is the small, round-celled; here, besides numerous pus-corpuscles and kidney epithelia, red blood-corpuscles are found in moderate numbers, and small globular bodies, larger than red blood-globules, but distinctly smaller than pus-corpuscles, without nuclei, coarsely granular, or almost homogeneous, and highly refractive. the "sarcoma-corpuscles." In contradistinction to these, the pus-corpuscles are here usually finely granular, often nucleated or vacuolated, with connective-tissue shreds present in large quantities.

RECENT PROGRESS IN THE TREATMENT OF SYPHILIS.

BY WM. H. LLOYD, M.D.

ONE of the saddest accidents that can occur is the infection of the physician with syphilis in the practice of his profession. It is of commoner occurrence than generally supposed for such cases rarely get into the medical papers, for example: Blaschko states that he has had occasion to observe twelve cases of syphilis in physicians during the last ten years, ten in Berlin alone. These cases are often hard to diagnose; when the primary sore occurs on the fingers, it is taken for a paronychia, but its slow course, its bluish infiltration and the depth of the lesion show its nature. Again it may be mistaken for Herpes on the finger, cadaver tubercle and soft chancre; but these present different symptoms, the first being preceded by neuralgia in the nerve involved and the entire process terminating in about ten days, while soft chancre rapidly heals under treatment. In some cases the syphilitic primary sore is very small and heals without a scar. The outbreak of general symptoms or the development of very large indolent buboes may be the first sign to attract attention; again the primary sore may be on the face. In another case a roseola broke out over the entire body without any premonitory signs of trouble, and not a single point of entry for the virus could be discovered on the patient, although he was a very careful and painstaking physician. The infection is often acquired during the extirpation of a bubo or some similar work; none have been referred to infection from an instrument which had recently been used on a syphilitic subject, although such a possibility should never be overlooked. The erosions at the base of the nails from excessive scrubbing may be the entering point; the danger from this source is particularly great in case of abortions or of premature births, so frequently occurring in syphilitic women. In one case infection was derived from dissection of a syphilitic cadaver shortly after death. It is well for every physician to remember the possibility that the patient before him may be a syphilitic especially where he has to use the knife or to make a manual examination. Blaschko believes that modern methods of cleaning the hands invite erosions and possible infection, and he thinks that too little importance is placed on cleaning the hands after operations, while they may suffer from the excessive scrubbing before. Cover carefully every wound and every crack; touch them with a 2 to 3 per cent. solution of silver and produce an impermeable covering of silver albuminate; then cover with a small scrap of adhesive

plaster with collodion outside or, better still, a finger cot. Rubber gloves or cots for all gynecological examinations are excellent for both patients and physician. When infection has once occurred, silver nitrate and sublimate, even used at once, have proved ineffectual to abort the process; in such a case rinse the scratch copiously with water and then pour tincture of iodine into the wound. Possibly hydrogen dioxid might be effectual, or better still burn the spot with the actual cautery. Medical patients are apt to err on the side of excessive treatment for themselves and severe physical and psychical depression results in some instances. The existence of syphilis need not interfere with the subject's professional work under certain obvious restrictions as, for instance, when there are lesions on the hands; the physician himself should decide as to this for himself, but no instances in which the disease was transmitted farther by the physician affected have been reported in medical literature.

The diagnosis of syphilis should never be made simply from the eruption: local sores, mucous patches, adenitis, or scars of old lesions should always be sought; but there are certain peculiarities about the eruption which should suggest the nature of the disease to the observer. In the characteristic secondary rash, the spots are raised above the surface, and convey to the examining finger the sensation of something being present beneath the skin, which is so characteristic of these eruptions. The color, which is usually described as that of copper or "raw ham," is really a mixture of brownish yellow and red; the brownish-yellow hue being due to the presence of new-formed cells and serum in the corium, and the red to the blood in the dilated vessels. When the blood is pressed from the vessels by the application of a piece of glass, the brownish-yellow color is very distinctly seen. The pigmentation of the syphilitic scar is best described as being of a dirty greyish brown, unlike the rich brown which follows the eruption of lichen planus, and it is invariably associated with a scar, thereby differing from arsenical pigmentation.

In this question of diagnosis comes a curious suggestion from Jullien. He noticed that by using blue glass to look through, at a suspected the eruptions may be discovered before they are apparent to the naked eye, and that traces of bygone eruptions are still discoverable. The method has not been generally adopted, and experience with it has not confirmed the high opinion which the author holds of it; a fact so true in medical history that the originator of a new plan invariably gets the best results.

The "Justus test" is based on the alleged fact that a single inunction of mercury causes a marked reduction in the percentage of hemoglobin in all untreated cases of the various forms of syphilis, due to the sensitiveness of the red blood-corpuscles to the drug, while in healthy persons no such reaction follows. Jones has applied the test in fifty-three cases, and the diagnosis in most cases was confirmed by a colleague. His fifty-three cases were divided into thirty-five syphilitic and eighteen control ones; of the former seventeen were acute, and of these thirteen responded, and four were negative to the test. Three of these had characteristic rashes and other evidence of the disease. Of eight cases of local sore with adenitis, two reacted positively and six negatively. His conclusions are that while the test has a value in the recognition of doubtful cases, it is not infallible, and frequently fails.

The tuberculin test has been used in syphilis; Otis has

reported thirty-five cases; the smallest amount of tuberculin used being 2 mgs., the largest 10 mgs. There were six undoubted reactions and five what he called "abortive reactions." Considering only the six undoubted reactions he had 17% of reactions; including the abortive cases, he had 31%. In the author's second series of twenty-six cases of suspected or proved tuberculosis eight cases in which the physical examinations showed sufficient evidence of tuberculosis or in which tubercle bacilli were found in the sputum, he had four reactions and four failures to react. In three cases in which tubercle bacilli were found in the sputum, two did not react; in one 7 mgs. were used, and in the other 5 and 10 mgs.; in the three cases in which 2.5 and 8 mgs. of tuberculin were successfully used, only a local reaction was obtained. The remaining eighteen cases of suspected tuberculosis, there were six reactions and twelve failures to react. In no one of those cases which failed to react could tuberculosis be more than suspected, with greater or less probability, by the physical examinations. A case of lupus of the face, besides giving a general reaction, showed a very pretty local one. A case of chronic laryngitis in which either syphilis or tuberculosis might have been the cause, a reaction was obtained, thus leaving the origin doubtful as before. Otis advises, after going over the subject very carefully, that in using the tuberculin test for suspected tuberculosis, experience teaches that we should look carefully for syphilis.

Joseph and Piorrouski examined the spermatic fluid of syphilitics, microscopically, but found no bacilli; but cultures from this fluid on placental tissue gave positive bacteriological results in all cases; drop-like colonies appeared in sixteen hours, which later assumed a greyish appearance. Under the microscope the bacilli resembled diphtheria bacilli, appearing as rods with clubbed ends, and containing metachromatic bodies; the organism stained readily with dilute carbol-fuchsin, and Gram's method was positive. The colonies degenerated rapidly on the original medium and on agar, but were regenerated by the addition of blood serum. Auto-agglutination was observed in hanging-drop preparations, and the additions of serum from a syphilitic individual produced agglutination. Cases of old standing syphilis gave negative results, and control experiments with healthy spermatic fluid were negative. The bacillus grew with difficulty on placental tissue from syphilitic women; while animal inoculation was not satisfactory, and experiments on the human subject not permissible.

There are two styles of syphilis when it comes to treatment, simple benign syphilis with little tendency to relapse, and a severer form with a marked tendency to relapse and resistance to treatment. The first type is commonly controlled by the administration of protoridide of mercury for eighteen months. In the second form use the "tonic treatment" devised by Keyes in which the patient takes an increasing number of pills from day to day until the gums are touched, or there is a decided fetor of the breath; the number of pills should now be divided by two, and the tonic dose obtained. Christian used the biniodide of mercury in 1-12th grain doses, combined with 5-20th grains of potassium iodide thrice daily in tertiary syphilis. In the early secondary stage the weight of the patient was most important as indicating the efficiency of specific treatment; when this treatment does not control the loss of weight, cod-liver oil and hypophosphite solution should be added.

Wielander has a method for treatment of chancres by

heat based on the fact that chancrous pus is non-inoculable when heated to 40° C. This method is as follows: Water conducted by two pipes, one carrying hot and the other cold water, to a copper reservoir, is kept at temperature of 50° C. by means of a gas jet; from this reservoir the water is carried by a rubber pipe to a coil of lead tubing through which it circulates, and then escapes by another rubber pipe. If the water in the reservoir is kept at 50° C. it is found that when it reaches the coil it has a temperature of about 41° C., below which it must not be allowed to fall. The ulcers are dressed with pledgets of cotton wool soaked in warm water, any undermined edges being first snipped off. A layer of moist is then applied round the penis, and over this the lead tubing through which the hot water flows. Another layer of wet wool covers the tubing, and the whole is covered with gutta percha tissue. The dressing is changed three times daily. In twenty cases, in some of which the chancres were both numerous and large, treated in this way, the majority showed after two days' treatment ulcers clean and healthy, and then the secretion was no longer inoculable. The patients were then all ready to go home, and were treated as out-patients; the wed to go home, and were treated as out-patients; the sores usually healing quickly under the application of dermatol. Wielander's statistics showed that among one hundred and eighteen patients treated by his method at an early stage there were no buboes. Chancres also heal under somewhat prolonged spraying with peroxide of hydrogen in full strength; the vapor being projected against the lesion with a pressure of sixty pounds.

In obstinate cases of tertiary syphilis, which will not yield to mercury and iodide, operation should be tried. Cheyne gives the result in three cases—one of specific ulceration of the cheek, another of ulceration of the skin over both forearms, and a third ulceration of the tongue. He thinks that similar rebellious cases might be thus treated by excision of the diseased part and skin grafting, and that gummata and syphilitic necrosis, and osteitis and periostitis might be so treated, but of course, constitutional treatment must not be neglected.

In a series of fifteen thousand seven hundred and ninety-nine cases of early syphilis Wemer discovered fifty-seven cases of jaundice, which he considered to be specific excluding catarrhal jaundice, early cirrhosis of the liver, and tertiary syphilis of the liver. The characters of syphilitic jaundice are: 1. It occurs in the early secondary stage. 2. It is accompanied by fresh symptoms of syphilis. 3. It reacts to specific treatment. 4. The onset is sudden and not accompanied by gastric symptoms. 5. It generally appears with the first skin eruption, occasionally with relapses. 6. Pruitus is rare, and xanthopsia only occurred in three of the author's cases. 7. Hepatic enlargement is slight, and ascites never occurs. Syphilis with jaundice is usually severe. Wemer believes the pathology may be either enlarged glands in the portal fissure or papular eruption in the intestine causing obstruction by implacating the bile ducts.

At the Congress für Innere Medizin Blum proved that iodine formed with albumin a staple substitution compound, by the formation of an albuminous substance (iodoalbumin) in the thyroid gland after the administration of iodide of potassium. Potassium iodide easily yields its iodine when acted on by oxidizing agents, and on the other hand, in the case of iodalbacid (a stable combination of iodine with a proteid nucleus, containing 10 per cent. of iodine), much stronger oxidizing agents

are necessary to liberate free iodine. The living body has a sufficiently strong oxidizing power for this purpose, shown by the quantitative excretion of iodine in the form of potassium iodide after the administration of iodalbacid, which can only be effected by oxidation and not by reduction. The relation between potassium iodide and iodalbacid is similar to that between glucose and starch; the latter never produces glycosuria, as it is only absorbed in proportion to its conversion into dextrose, no matter how large the dose. In the same way iodalbacid never produces so great an excess of iodine, liberated in the tissues of the body, as potassium iodide. Iodalbacid is also practically not eliminated by the kidney, and hence during its sojourn in the body not only is its action (in liberating iodine in the tissues) slower and steadier, but its excretion is slower, but its action is longer. In numerous cases of syphilis in which potassium iodide produced slight or grave symptoms of iodine poisoning, the administration of iodalbacid was free from such effects. Again, most of the potassium iodide given in tertiary syphilis passed through the body too readily to affect the tissues. Hence potassium iodide is indicated in cases in which first rapid action of iodine is desired; for example, in severe tertiary eruptions. But in all cases where a prolonged iodine treatment is desired iodalbacid should be used. Fifty cases of syphilis were treated in this way at the Dermatological Hospital, at Breslau, and in the private practice of Neisser. The results were good in all cases; 3 to 5 grains of iodalbacid in capsules being given daily.

As to mercury the conclusions of Justus are excellent: Syphilis untreated produces a diminution in hemoglobin varying with the severity of the disease. This diminution is compensated by degrees as the symptoms of syphilis undergo spontaneous involution; the same diminution in hemoglobin occurs after the administration of mercury, and is proportionate to the amount of mercury used. Inunction causes the same effect as injection. Ingestion by pills causes less effect owing to the smaller dose. The hemoglobin is restored sooner or later according to the severity of the symptoms. It may again sink after repetition of the administration, but if treatment is continued, it ultimately reaches a higher level than before treatment was begun. When the hemoglobin ceases to sink after repetition of mercury the syphilitic symptoms remit. This sinking of the hemoglobin after the administration of mercury is a specific phenomenon, and is not observed in the blood of healthy persons, nor in other diseases. This reaction is present in early secondary, and in all subsequent stages. It disappears when symptoms subside, but reappears at each relapse; mercury circulates in the red corpuscles, and is only present in the serum when the corpuscles are saturated.

An old time remedy is grey oil. Lambkin has made extensive use of a modification of the "oleum cinereum," introduced by Lang, of Vienna, in 1888. Lambkin uses hydrarg. $\mathfrak{z}\text{ij}$, lanolin $\mathfrak{z}\text{ij}$ (by weight, mixed with ol. carbolic (1 in 20) $\mathfrak{z}\text{iv}$ (by measure). 10 minims of this are used for each injection, and the injections are done once a week, in the pteal muscles. Lambkin has done over six thousand injections with no bad effects. This method is advocated for the treatment of soldiers, especially in India, on the following grounds: 1. By this method the soldier can be treated whilst out of hospital at his duty for that length of time necessary to cure the disease. 2. The treatment is in the surgeon's own hands, and he sees that it is carried out. 3. It is less liable to

cause diarrhea and indigestion. 4. The State gains because the time spent in hospital is diminished, while the chances of readmissions are reduced. Lambkin first used injections of perchloride of mercury, but gave it up owing to the pain caused by it. He prefers the "grey oil" to any other form of injection, but has also used sozoidol of mercury (sodae iod. grs. x, hydrarg. sozoidol grs. v., dest. m. c.c.; mx to xx daily). This causes more pain, and does not seem to have such a good effect as the grey oil. He uses platinum iridium needles one inch long. The average time of treatment was five months.

A model meat supply is described by N. H. O'Neill in *The Medical Times and Hospital Gazette* (May 27, '05). The population of Berlin is two and one-half millions, for whom the city corporation has erected at great expense a combined cattle market and slaughter house, which occupies an area of over 27 acres. All cattle offered for sale must be brought thither, and the slaughtering of cattle anywhere else in the municipal boundary is absolutely prohibited. Sheds are provided for the reception of oxen, sheep, swine and calves respectively; and strict attention is given to the foddering and cleaning of the animals, and also to the free ventilation of the stalls. Four thousand animals can be dealt with at one time. There is the most scrupulous cleanliness at every stage of the work. On one day alone 7,763 pigs were slaughtered and inspected; and here over one million pigs and a corresponding number of cattle are slaughtered annually. There is one director of the public market and abattoir; about sixty qualified veterinary surgeons and meat inspectors, and three hundred and sixty trained assistant meat inspectors (of whom 160 are women) who examine microscopically meat suspected to be diseased. Eighteen minutes is the time devoted to "each individual suspected portion." These assistants work on an average five and one-half hours a day and are paid at the rate of eight pence for each specimen examined, each worker thus examines about 25 specimens daily. They must before appointment have their eyes carefully tested; and they work only four days in the week. From one to two per cent. of the cattle and pigs are found diseased. In the latter tuberculosis, jaundice, trichinosis and tapeworm are most frequently found; in cattle tuberculosis, tapeworm and actinomycosis. All meat is divided into three grades: pure, sound meat; partly diseased meat, which must be sterilized and sold at a reduced rate; and meat unfit for human food, which must be destroyed, the fat being used for soap and candles, while the bones are converted into manure. The value of a condemned carcass is handed to the insurance company; and its owner is paid in full. All animals to be slaughtered are insured. They are carefully examined both before and after slaughtering. The sanitary conditions of the building are as perfect as may be. All male employees wear white linen overalls. Everything is carried out with scrupulous cleanliness. The strictest courtesy is observed toward all persons. All meat is stamped as an evidence of guarantee to the public of its condition; and no meat can be sold otherwise. The reader should further examine the regulations set down by Cornet of Berlin regarding tuberculous cattle in his book (*Nothnagel's System of Medicine*). And it should be his rather dismal duty as a citizen to read the reports concerning our own Chicago stock yards in *Collier's* (April 22, '05).

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THE STATUS OF GOUT.

THE etiology of gout is a question in medicine, like Hamlet's father's ghost, that will not down. Even editorially it is receiving attention. Scarcely are we ready to accept one theory and set of observations before another one is set before us to absorb. It is a sort of unending "medical merry-go-round." Let us see what the very latest authorities say. Von Noorden, who is a clear-headed observer, says: "There is sometimes a real retention of uric acid in the body, which is followed by an increased excretion of uric acid in the urine; but the uric acid contents of the blood do not vary in a typical manner with the phases of gout, and we do not really know what compounds circulate. Gouty deposits consist of sodium biurate; uric acid is a poison determining inflammation in the surrounding tissues, but only when the solution is sufficiently concentrated; the solid needles are non-irritating. Alterations of the alkalinity of the blood and tissues cannot explain the deposition and the solution of the crystals; this solution of solid needles is a phagocytic process. The crystals are deposited probably before the acute attack and the acute gouty inflammation depends on their sudden solution. The form in which uric acid circulates in the blood is uncertain; it has been suggested that the normal organism has at its disposal a number of organic substances with haptophorous side-chains for catching and dissolving uric acid. Out of these combinations the kidneys eliminate uric acid. Deviations from the normal may arise when the influx of uric acid to the blood is too great, or when the sum of the uric acid binding substances is too small." Von Noorden also states that food containing an excess of purin bodies is to be avoided; alcohol is very injurious in gout, probably because it interferes with the formation of uric acid haptophorous chains. Alkalies in every form are utterly useless; indeed in true gout they cause an actual retention of uric acid. Salicylic acid is a powerful but dangerous uric

acid eliminant, while the water of certain saline springs brings about a striking and remarkable increase of uric acid in the urine. The excreta of gouty patients shows that the endogenous purins are increased by administration of sodium salicylate, and this increase does not arise from excessive cell destruction, but probably from diminished destruction of already formed uric acid. The exogenous purins are metabolized by gouty patients almost as well as by normal individuals, any slight retention being due to increased capillary pressure and subsequent slowing of the lymph stream, and not to the formation of abnormal compounds. The endogenous purin in gouty individuals may possess peculiar affinities and combine with abnormal products of proteid metabolism. The presence of constipation in gouty patients is accompanied by an increased output of uric acid, this excess, however, apparently arising from diminished destruction of the formed uric acid.

The salts of uric acid chemically examined show that there is no evidence of the existence of a third order of uric acid salts—i.e., quadriurates—either in the artificial or natural amorphous urinary deposits, or in the body fluids. The substances obtained artificially under the conditions supposed to produce quadriurates, consist of mixtures in varying proportions of uric acid and biurates, or of pure uric acid or pure biurates alone. Natural morphous urinary deposits consist of a mixture of uric acid with urates of sodium ammonium, potassium, calcium, and magnesium. The property of some amorphous urates, of showing the formation of uric acid crystals under the influence of water, is due to the dissolving out of the more soluble biurate moiety and a change in physical state of the remaining uric acid. Any theory concerning the pathology or treatment of gout, or the uric acid diathesis, built upon the assumption of the existence of quadriurates, requires reconsideration. The existence of two forms of uric acid (the tautomeric lactam and lactim form), may explain the variation in physical and physiological behavior.

The latest views on gout as pronounced by Haig, who is an old time standard, are as follows: That gout is due to poisoning by flesh and tea and similar substances, introducing uric acid into the body in very considerable quantities; uric acid so introduced may not only remain in the body, but may prevent the excretion of the uric acid formed in the body; as a result the body becomes more or less saturated with uric acid, which may irritate its fibrous tissues (gout or rheumatism), or may obstruct its capillaries, causing high blood pressure and defective capillary circulation and their results, such as the great group of circulation diseases, the uric acid headache, epilepsy and mental disease, anaemia, Bright's disease, Raynaud's disease, etc., all of them being mere results of the enormous influence which uric acid exhibits.

When gout is hereditary, then the nutritive disorder of the cells of the first begetter has been continued through the ovum or the spermatozoon in the descendants of these cells.

At the thirteenth International Congress of Medicine, LeGendre gave an excellent account of the principal theories of the etiology of gout to be the following: "The introduction in excess of uric acid by food, or of nitrogenous substances generating uric acid; the formation in excess of uric acid by destruction of the nucleins or nucleo-albumins proceeding from the leucocytes or from the nuclei of all the cells in the body; the accumulation of uric acid by insufficiency of transformation into urea, whether through torpidity of the liver or default of a ferment permitting it to fulfil its uropoietic function, or by inadequate oxidation throughout the organism; the retention of uric acid in the blood by insufficiency of the eliminatory function of the kidney; the resorption of uric acid in the kidney, which being supposed normally to have the function of effecting by certain of its cells the formation of uric acid by combination of the urea and glycol proceeding from the liver, would become incapable of eliminating the acid formed. This being reabsorbed would in the blood become quadriurate of soda, which being present in superabundance, precipitates itself under certain influences in the tissues in the state of biurate of soda. The presence of urate of soda in the articular tissues sets up therein only a parocystic inflammatory reaction as a foreign body also claims that the uric acid acts as a chemical poison, causing necrosis, and that the preliminary mortification of the tissues is necessary to the formation of the crystallized uratic deposits. Some explain the gouty localisations by the smaller vascularisation or the less resistance of predisposed tissues, and the onset of attacks by the hindrance of the renal functions; others attribute the localisation, paroxysms, and metastases to a nervous influence. Uric acid was regarded as being hurtful only after having undergone certain physical or chemical modifications, and a pathogenic role should be attributed equally to substances other than uric acid, such as alloxuric bodies. Each theory is open to valid objections, and the most plausible could explain only the mechanism of the gouty paroxysm, not the permanent and hereditary transmissible disturbance, the link between the disease of father and son. Gout is observed with special frequency in individuals whose ancestors or descendants suffer from diseases of the so-called arthritic group or from trophic inadequacy, e. g. diabetes and obesity and gout is often associated with some of these diseases in the same patient. The relations established between diseases of the arthritic group warrant us in attributing to each of them the pathogenic process shown to be true as regards one of them by Bouchar, after whose investigations it is no longer permissible to doubt that

diabetes consists in a diminution of the aptitude of the tissues to burn up sugar, to carry to the extreme the transformation of carbohydrates. If, clinically, gout is of the same nature, it is probable that there exists in the gouty subject a defective elaboration of nitrogenous material, an inaptitude of the tissues to destroy albumin thoroughly. Among the consequences of the incomplete destruction of refuse, must be included the incumbrance of the organism, both by oxalic, acetic or lactic acids, which can diminish the solubility of uric acid without that substance being necessarily in excess in the blood, and by certain organic bodies the toxicity of which may contribute to the production of the manifold accidents of gout. The morbid affinities of gout are connected with simple albuminuria and interstitial nephritis, and it may be inferred that the functional disturbances of the kidney, as those of the nervous system, play a part in the preparation for gout and in the outbreak of its paroxysms, either by hindering the elimination of toxic waste products of the denutrition of the tissues, or through neurotrophic inhibition of the intracellular metabolism. When gout is acquired, the nutritive disturbance of the cells is brought about by a defective hygiene such as abuse of food stuffs nitrogenous or rich in oxalic acid, and of certain fermented drinks and insufficient physical activity, together with intense mental strain.

HELP FROM LAY JOURNALS.

WE have referred occasionally to the unfortunate economic condition which is closely connected with most of the serious problems of polity which the medical profession has to meet. It is scarcely necessary to explain that we mean the excess of supply of physicians over the demand for their services. Once in a while, a very few medical journals publish editorials of a more complacent or even optimistic tone. In such cases we are inclined to believe that the writer is too greatly influenced by the relative comfort of his own and his personal friends' existence, forgetting the bitterness of the struggle for the great majority, or that he is too much impressed with the idea of survival of the fittest.

The facts are that the United States has about one physician for every six hundred of population, at least twice as large a supply as is needed according to the actual experience of European countries having more obstetric work and more disease than we have. For the last few years—very few, indeed—the graduation of young physicians has been just about sufficient to maintain this ratio, and, at the same time, the incidence of disease and, according to many writers, of obstetric cases, has diminished. We are also personally of the opinion that available appendixes and ovaries are being quarried out faster than they can be produced. We do

not mean, by this statement, to imply that the incidence of appendix operations exceeds the birth rate nor that cophorectomies are double the birth rate but, allowing for the removal of appendixes by deaths from other cause before surgery has a fair chance at them, for occasional individuals who go through life without an abdominal pang and for certain tight-wad patients and physicians who hang onto their appendixes as to life itself, it seems probable that the supply is really being exhausted.

Seriously speaking, although the ratio of physicians to population is not at present being materially changed, the proportionate demand for physicians' services is falling off and, especially, among the class best able to pay for them. Sound economic considerations require that, in any trade, business or profession, every competent worker should immediately be occupied for a full working day and should be able to find enough work at standard rates of pay to enable him, with moderate foresight to save enough to provide for an old age of comfort, in accordance with his station of life. These conditions are not fulfilled for medicine and it is a very short sighted and unwise optimism to regard the state of affairs with equanimity.

The majority of the members of our profession realize this condition and exercise their influence to restore an equilibrium between supply and demand. Unfortunately there are reasons why this influence has not its proper and expected weight. A large—indeed, a ridiculously large—proportion of the profession are connected with medical schools. The influence of this part of the profession is, in accordance with well-known laws of human nature, rather to increase the number of prospective physicians. Yet, in the long run, how much better it would be if we had, instead of one teacher for every three or four students, a smaller number, properly paid and enabled to make their teaching a serious business instead of a side line. In this connection, we may quote one of the maxims of a successful commercial traveler: "Don't carry side lines!"

Again, even those of the profession who are not engaged in teaching, often urge a son or nephew, office boy or protégé to enter medical study, without any particular aptitude or desire for medical practice.

So far as each of us can exert an influence against the overfilling of our profession, we are still hampered by various personal considerations. As a class, we must maintain a bold front and live beyond our incomes and thus, apparently, belie our words when we argue that competition is already excessive. Then, too, every trade or profession is suspected of selfish motives when it tries to limit the accessions to its ranks. And we must never forget that one of the prime factors of liberty is the freedom of choice of occupation so that, no matter how great the overcrowding of our profession, we must always allow free entrance to anyone who is willing to under-

go the necessary struggle and properly to prepare himself for it.

But of late years, the laity has begun to realize the sincerity of those who declare the medical profession to be overcrowded. It is, undoubtedly, partly on this account that laws requiring proper education of medical matriculants and proper training of medical students in the medical schools, have been passed by state legislatures. In numerous addresses to young men at the time of life when vocations are being chosen, the advice has been given to avoid such professions as are already too well filled. Numerous magazine articles have dealt with the medical problem, either in the form of an essay or a story. Fiction writers have, as a rule, grasped pretty well the idea that the beginnings of medical practice involve a bitterly hard struggle. Perhaps, they have exaggerated the physical suffering from cold and hunger in these days of easy credit and lenient treatment of debtors. On the other hand, they have usually had an entirely inadequate conception of the hunger for proper equipment, and for scientific and professional needs. They have made the period of struggle months instead of years. They have used as a strategic point the acquisition of a rich and influential patient or the conquest of the old and rich doctor who capitulates, like the king in the good old fairy story, with the surrender of half his kingdom and his daughter's hand in marriage, or, in some other way, the struggle ends by crisis, whereas those of us who have had the actual experience, know that the acute fever of professional hardship has a high mortality—more than ten per cent., and some say sixteen per cent. of all medical graduates fail to continue in practice, if they even start—that this fever usually subsides by lysis and that it is subject to recrudescences and relapses. Indeed, like malaria, it is often never eradicated, but persists in an annoying though not incapacitating form, throughout life.

Lillian True Bryant, in the July *McClure's*, tells a story of the "City Physicianship," which many may recognize as their own biography of the period when they were getting their first experience of professional poverty, love and political intrigue. Fortunately, the hero gets an accident case in the family of the villain, who, after promised aid, was about to give the coveted appointment to another and this stroke of luck turns the tide. However, fiction must deal either with the tragic or the lucky stories of life. The disagreeable, commonplace stumblings through the dark, bruising our shins but not breaking our necks, encountering nothing eventful and yet, somehow and sometime arriving somewhere out of the dark—these are the lives that we live but they are not worth telling about.

Forty-three women are at present studying medicine in the University of Michigan; in its department of law there are but four women.

THE DISEASE OF FATIGUE.

IT may occur to reflective minds in our inimitable profession of human healing, that, on its ascending planes of superabundant technicalities, there has unfolded a noticeable prominence of mental or scholastic attitudinizing, a tendency to medical transcendentalism, the literal speculative and soaring Emersonianism in physics, that, though unique and beautiful enough in its studied impress, may sometimes happen to balloon its flight exaltedly above the very housetops and steeples of average comprehension, and thereby escape the simpler reach for handy practical service.

In face of the en-masse necessities of plodding humanity, the more obvious mission of the great rank and file of medical practitioners, (not theoreticians), who are doubtless full to their finger ends of daily work and mede of income needs, while gleaning for helpful knowledge they naturally award a hurried glance at the provided store, but often indeed to only gloss over the first few paragraphs of learned, technical, stupendously prepared dissertations which may eminently dignify in plain type the monthly page. It may be the most learned exhibit thus deferentially turned aside unread, for search of something that is tangibly closer to mother earth, where the hunger and thirst for ready assistance by simpler process promise a more accessible and happy utility. The wise harvester, who would timely tie his ripened sheaves along the falling swath, cares little to grasp for unreachable rings of the planet Saturn to make hurried binders. The stomach that aches for the comfort of bread, wills and waits not for analysis of the mysterious complexities chemically combined and visibly evolved by the everyday grain of wheat. It is to escape from, it is the ready relief from, the hostility of physical disintegration that is sought by the practical-minded masses we serve, who take neither pride nor liking to entoned scientific mumble or top-story disquisitions that to the level ear fall like sonorous swish of waves when the solace of only a plain-faced drink of water is the only relief craved.

The primitive stage of many a pathetic illness is simply the disintegration of undue fatigue—the quite universal experience from uncounted agencies to which mortals are subject in the multitudinous overstrains hinged to modern civilization. This subject is far from trivial. It should not be allowed neglect of thought. Its problem effects all humanity and faces us in some phase every day. Wives and home-keepers whose work is never done; mothers burdened with child-bearing cares; the exacting tax of society functions and fashion stunts; men and women and youths who monotonously drudge from month to month; brain-workers who profusely expend nervous energy at its source; how many of the world's workers realize that the grasp of fatigue is the great yearning prayer for physical relief and rest!—a sore craving for conditions less burdensome—for

hours less exacting!

How sparse the number among the physician's clientele—how unaccountably remiss are the physicians themselves—who accord cautious recognition to the verity that real fatigue is exhaustion, its appeal of discomfort is the call to witness the measure of exhaustion already incurred, whether of physical toil, muscular or mental strain, or the languor of worn-down energies,—in short, that fatigue is a herald of encroaching phase of de-facto illness! The province of normal exercise to the functions of health may be likened to the relations of the sunbeams to the elements of life on the earth, the motive influence that modifies temperature, impels reviving motion to the atmosphere, rouses the cleansing brooms of the wind, flushes and disperses the pools of stagnation to the disinfection of the salty sea. Normal exercise rouses the energies from sluggish lairs, sweeps the systemic organism with renewing flush of nutrition and vital innervation. It transfers the impurities of denutrition to the open gates of vivifying oxygenation, flushes the leash of the skin into free exit of perspired depurative material, and through invigorated metabolic process provides enjoyable relish for sustaining foods. But not so is positive fatigue. Fatigue excoriates and wears through to the raw nerve of endurance which then quivers and throbs under the rasp and pressure of even ordinary but overwrought effort. The rash spur of will power may sometimes become the burglar of the human citadel and its murderer. The willing spirited horse may not slacken speed till he falls to expire where his last tracks landed him—driven to death!

Disease grows by what it feeds on. The overdoing of strength is the undoing of health. Slow suicide by legitimate exertion is not an uncommon possibility among our ambitious people. In the supple livery of rush and push, with the severe accoutrements of pull and drag, death masquerades unrecognized. The doctor should recognize this dread pantomime even if the people discern it not. A slowing of the pace, a systematized division of the hours, would prove incomparably more rational and profitable than to rake the broken system, after it is down, with our extraneous stuffs we call drugs, ranked in labelled rows by thousands in their apothecary arsenals. The pathos of tragedy shrouds the circumstance that the business-hounded clientele of physicians reach their vital breaks and take-offs through voluntary grind in which danger is viewed askance much like the risks of loss and defeat in the ventures of stock deals.

But the physical problem of fatigue is as plain as the mathematical differences between elementary tables of addition and subtraction. Continue incontinently to subtract on each day or night more than is added to the vital forces, and it is like the fountain dipped dry of its supply. The source of elastic energy fails just

as the bank of current finance becomes invalidated and forced into suspension by runs of overdrafts upon its normal reserve. Systemic default is seldom the precedent of itself. It is not, however, the fact of exertion that has dethroned the supportive energies; it is the consuming expenditures beyond the normal equation. Normal exertion promotes enjoyable appetite for restorative food and the refreshment of sleep. What, then, does the situation mean when we hear one say: "I am, or was, too tired to eat—too tired to sleep!" The blood has had its elastic elements worn and wasted from its pabulum: the blood is in a state of deficit and impotence. The nerves have been drained of their functional impetus. Their batteries have run down in voltage below the grade of effectiveness. The relaxed muscles have flagged for respite and relief. With the retreat of vital defences into the slough of inertia, the body grows sick with depression. The tide is out, and the yielding sands lie bare to aggressive impress. Like a sponge that absorbs any evil diluent that touches its surface, the system is open to whatever malady drifts to its train of infirmity and the development of a variety of extended ailments mark the ensuing stage of the case. And then what? How earnestly we diagnose a nomen this or noman that, assuming that we are prescribing for the actual disease! And how appropriately we believe we are wise! We uncork the batteries of shining bottles charged to the throat with compressed tablets and solidified pills and scathing liquid compounds to batter down rebellious functions that have faltered on the march. We also mentally scan the horizon of probabilities for mysterious burrowers of bacterian sort that may be sapping the vitality, and we invoke impromptu antitoxins to prevent any insatiable invisible bacillus from consuming the patient. We are on dress parade with drawn swords.

The illness of fatigue is for the time the illness of incipient dissolution. Read the late testimony of Dr. Weichardt: "The author pulled guinea pigs back and forth over rough ground till they were very tired and there came a sinking of the bodily temperature. Under careful antiseptic precautions, I obtained some muscular plasma, which as compared with the normal flesh tasted bitter, and was reddish in color. Animals into which it was injected, in any quantity, died promptly." This investigative experiment made by the German examiner teaches and incidentally demonstrates a realistic lesson in the severity and blight with which the human system may be stormed by the corpuscular and muscular disintegrations of excessive fatigue. What must become of the delicately constructed heart in such conditions? How closely linked the unlimited train of nervous prostrations?

As corollary to this pathological postulate opens here the thought that reaches deeper into physical and mental mischiefs of actual fatigue, namely, the depress-

ing environment, wherein the exertion is made, that disposes to undue weariness as gauged by the actual toil performed and endured. If the air breathed be pure and tonic, if the work-place and the home hygiene be wholesome, they potently defend the body from nutritive defalcations and sense of depression expressed by fatigue and lethargy;—whereas the opposite conditions of daily and nightly environment directly entail the discomforts of fainting energies. Then the thralldom of weariness is one from which there is little respite or escape till a nervous prostration, a grippé, a typhoid, a neurasthenia, or other culmination rounds into the crisis of struggle for recovery.

YELLOW FEVER.

SOME forceful comment is certainly apropos with regard to the yellow fever situation which was recently developed in and about New Orleans. This city, it seems, announced its determination to "demonstrate thoroughly to the world that yellow fever can be driven out of New Orleans." What that portion of the world included with in the United States had a perfect title to expect was that New Orleans should have kept out the disease—should in fact never have admitted it; and her failure here has been a stigma upon the entire country, and has caused much national suffering. The work of Reed, Gorgas, Mansen and Guiteras, by which Havana and Cuba have been made proof against this disease, and that of Marchoux and Simond, of the Pasteur Institute in Paris, should certainly have borne better fruit. We must note, however, that the fault has really not been so much with the municipal health authorities, as with the difficulties they met in getting their wholesome regulations complied with. These regulations, which we here reproduce, are admirable; and there would certainly have been no epidemic had they previously been effectively enforced:

"Clean out every place where water stands.

"So dispose of old tin cans, bottles, or what not that rain cannot possibly be retained.

"Watch your roof gutters.

"Empty your rain barrel of water every week, or screen it closely with fine-meshed wire on top.

"Change the water every day in a drinking pan for dog, cat, or bird.

"Watch the watering trough near your stable.

"Fill a hole in a tree with soil packed tight, or with cement.

"In other words, get rid of, or coat with kerosene, all stagnant, standing water, and you will get rid of mosquitos.

"If you have a playing fountain, put little fish, like minnows or goldfish, in the water, and they will eat

the mosquito larvæ.

"If you have a sluggish brook or a stagnant pond near your house, spray kerosene or coal oil on the surface; this makes it impossible for the 'wrigglers' to breathe when they come to the surface, and they die. The coal oil application is only necessary at the edges, and is good only so long as the oil film is unbroken."

These regulations, based upon the scientific principles enunciated by the great physicians just mentioned, are worthy the attention of every municipality in the United States; for there is no city within our borders which may not suffer as New Orleans has done, if sanitary measures are neglected. These measures should be based upon time-established facts; that yellow fever is transmitted *only* by a mosquito, the *Stegomyia fasciata*; and that yellow fever will be abolished wherever and whenever by general sanitation this pest is destroyed.

The lay press reports most pitiful results of carelessness and neglect of these simple principles. It is not true, as has been said, that no doctor over forty will ever learn anything new; but there are sufficient such to make the work of advanced and humane sanitarians very difficult. There were, for instance, New Orleans physicians who had to be legally dealt with for not screening cisterns, or for maintaining filthy premises. Just behind a hospital, states the *New York Times*, a pavement was disinterred by the removal of a yard of filth. The filthiest street in the city was the one leading to the cemetery where lie 50,000 victims of previous epidemics. A devoted and beloved Catholic Archbishop while working fearlessly among his sick of this disease, gave up his noble life.

The worst among the evils attending the recent epidemics was the persistence by several states in "the imbecile, old-fashioned panicky" quarantine, some of the features of which must here be noted in the hope that we may, by doing so, assist in the burial forever of this mediæval institution. One town in Louisiana actually refused to admit a consignment of carbolic acid sent to it for disinfecting purposes, another turned back a carload of steel rails. A young man from New Orleans went to a neighboring point to look over some timber lands for his employers. He had the misfortune to be taken sick, and the sickness being suspected to be yellow fever, he was driven from several towns and finally compelled to seek refuge in the swamps. A party was sent out with a doctor to try and find him, but it was feared that "he succumbed to the treatment to which he was subjected in his sickness."

Three Italians, one of whom was sick with a suspicious fever, were in a yawl, upon which they were set adrift from a Mississippi steamer. They were trying to land on either shore to get provisions and attention for the sick man. They were driven from point to point by armed guards and were not permitted to land.

There was a burlesque quarantine war between Mis-

issippi and Louisiana, in which "the battle of the Rigollets" was fought, fortunately without tragedy, in which sand barges and oyster boats were sworn in as naval vessels. Local and parish health boards in Louisiana established quarantines in defiance of the Constitution, under which such action could not be taken without the approval of the State authorities; thus was the State defied, and embargoes established, by which not only was freight shut out, but all through travel estopped; telephone and telegraphic communication was cut off and non-intercourse proclamations were issued by which some towns were left in a starving condition; and others without medicines and attendance, when these things were so sorely needed. Thus were senseless and cruel hardships inflicted upon thousands of unoffending people. The town of Jennings, La., in the centre of the rice and oil districts of Calcasieu, reported itself on the verge of famine because of the quarantine. A citizen of Laurel, Miss., was heavily fined by the Mayor for joking about yellow fever, and warned not to be funny again upon the subject. The town of Patterson established a strict shot-gun quarantine against the rest of the parish at St. Mary. All this time Patterson was the only portion of St. Mary suffering from the yellow fever and had nineteen cases in one day. This quarantine was finally removed by the Patterson authorities; when the rest of the parish of St. Mary reversed the matter by quarantining against Patterson.

Finally those who remained sensible and level-headed discerned that the only hope in the situation lay in an appeal to the National Government; and in this appeal those in authority in the various involved states joined, with the result that a national quarantine was established. Dr. J. H. White, of the Marine Hospital Service, was put in supreme command of the situation; and under his sane, tactful and masterful direction order was brought out of chaos and the epidemic was checked. We may here state with renewed appreciation that Dr. White saw that the purposes and aims of the New Orleans Health authorities were good (though their power was ineffective); and his work was in large part simply to endow the principles they enunciated with the power of the government. We may here see with pleasure that in this trend of affairs the establishment of a national quarantine service and of a national health department is brought much more distinctly within the range of possibilities. When a city like New Orleans and a State like Louisiana, in which jealousy of national control has been strongest, throw up their hands and implore the Washington authorities to take charge of the fight against yellow fever, the end of merely local and conflicting safeguards against a national invasion of epidemic disease cannot be far away. "Congress will undoubtedly be called upon to make the powers and duties of the national government larger and more precise in all that relates to oversight of the

public health. This is the way in which constitutional changes gradually came about in this country. A crying practical need presents itself, and then we adjust the law of the land to meet it. On purely theoretical grounds the change would be opposed; but the concrete emergency carries off the argument triumphantly." (*New York Evening Post*.) Let those who would still oppose this change reflect that with regard to yellow fever at least, this disease was on August 8 reported in four places in Mexico, three in Honduras, in British Honduras, Guatemala, Panama, Colon and several other places on the Isthmus; in Venezuela, Ecuador and Brazil; in Senegal, Africa and in Santa Cruz in Teneriffe.

THE EVOLUTION OF THE HUMAN FACE.

THE study of physiognomy should greatly interest the physician, especially the alienist; but here scientific literature is singularly meagre. We know of no authoritative work upon this subject. All physicians have learned a great deal from experience, and the power of observation which is perforce very keen in our profession. The bags under the eyes point to the kidneys and the heart; the retracted alae to some nasal or other obstruction to respiration. The thick lips denote the sensuous nature; the large, luminous eye the poet; the fugitive eye, looking anywhere but straight in yours, the ill-balanced, paranoic temperament, which recruits the rank and file of the large army of cranks. Then there is the "terrible smile," described by the *Autocrat of the Breakfast Table*, which indicates so pitifully the weak and paretic tendency. And the receding chin indicates the timid man (but not always—one had best not here assume too much, as witness the late Inspector Byrnes.)

Rufus Mann most interestingly traces the *Evolution of the Face* in *The International Quarterly*. Although the origin of all the elements of the human face cannot be traced they have probably all been developed in the life above the fishes, the heads of which are however imperfect. The latter are not separated from the rest of the body; there is no neck, the gills are attached to it, requiring a complicated system of machinery to aid their functions, sight and smell are good, but hearing is inadequate, and the voice is indistinct and quite inarticulate. The reptiles are the next step. Here there is a neck and a head fairly finished, "the ennobled part of the body is more distinctly separated from that which serves the lower functions." Every essential feature, except, perhaps, the outer ear, is at least suggested. Advance to higher forms is now made on two distinct lines: on the one hand, to the birds, on the other, to the mammals. There is a wide spiritual gap separating the reptiles and the birds; we pass from dull and stupid things, with rigid and apathetic faces, to creatures which embody emo-

tional activity. The mentality of the latter is bewitchingly voiced in their song; but more than this, the face becomes capable of much expression.

The monkey furnishes the first clear premonition of the human face. We see here, with something of a shiver, "this part beginning to adjust itself for a higher destiny." The jaws become shorter, the mouth diminishes in size, the nose, hitherto flat, begins in some species to assume a distinct human outline; the eyes are closer together, and the eyebrows somewhat better defined; the hair, although still covering the face, grows so as to separate it more sharply from the head; but above all, the facial muscles become developed, so that a real play of countenance is evolved. The faces of monkeys are indeed more expressive than those of the lower races of men, for, having no articulate speech (here Mann is not in accord with Prof. Garner, the simians' friend), they are compelled to signify by grimaces much that the genus homo conveys by language. Thus the first result of speech would seem to be to limit the mobility of the face, but with the higher races the scope of ideas and emotions is such that the voice, a most important organ of expression, cannot meet the demands of the mind, and in consequence the face becomes obedient to the soul.

The lifting of the forehead and the accentuation of the chin have more than any other factor produced the noble and commanding appearance of the human face. The distance from the eyes to the ears has also steadily increased; as has also the height of the countenance as compared with the width. This latter modification appears in all races in the ascending grade of culture. The localization of the hair of the face, although characteristic of man, is indicated in the lower forms. In male monkeys, for instance, the lower part of the face is in some species bearded. With the loss of the hair there has resulted the peculiar sensitiveness of the skin which is manifested in blushing. This phenomenon, together with the sentiments occasioning it, are peculiar to man.

The abolition of the hand-shake is being strenuously advocated by Dr. Nelpasse, a French physician, living in Constantinople who would substitute the "Temenah," which is the Oriental form of salutation. Here one places the right hand on the heart, on the lips and on the forehead, signifying thus: Thou hast a place in my heart, and on my lips; and thou art always in my thoughts. Dr. Nelpasse would base his change of salutation upon the fact that the hand contains over 80,000 microbes—more or less—to the square inch, which are likely to be transferred from hand to hand. No doubt there is here a good scientific observation; though we should think that not a transfer but an abolition of microbes—the terror of modern civilization—is desirable. But it would seem that the Temenah takes too long by a second or so. Besides it would in most cases signify too much, except among lovers and very dear friends and relatives. The Chinese method—that of shaking one's own hands and bowing—appears to us a very fair compromise.

THE AVOIDANCE OF PAUPERISM.

IN our American civilization, at least, the danger of inducing pauperism furnishes one of the most serious problems of scientific charity. To help without doing harm has become a matter of extremest difficulty. A mere detail of charitable work will illustrate. In the city of New York day nurseries are provided in which mothers may leave their children while they go out to work by the day. Here is a touching charity which certainly appeals to the tender-hearted, and is beyond criticism for a small proportion of cases. But they exist now in altogether too great profusion, fostering a dreadfully false condition of life. Again settlement work has made it possible for many a family to get its bread without price from one quarter, its meat from another, its clothing from another, its comforts from another. Thus have these means, by removing in large measure the necessity for parental maintenance, been efficacious, more than any other one agency, in fostering paternal drunkenness and desertion. So that 60,000 cases of desertion by husbands have recently been reported for the one city of New York.

This danger of charitable enterprise has engaged the serious attention of publicists of a sincerely humanitarian type. Leckey, for instance, finds it difficult to overrate the evil effects of injudicious charities in discouraging "thrift, industry, foresight and self-respect." (*The Map of Life*.) And Bishop Potter urges the philanthropic to guard against enervating the integrity of the individual, absolutely the one and only sure force upon which whole-human civilization can be based.

In England the danger here noted is in great degree obviated, at least in rural districts, by the village clubs to which the laborer pays a few pence weekly or monthly. The improvident one who falls behind with his "club money" is a marked man; on the other hand, he who pays it in "regular" may thus cover many transgressions. Few there are who will not make the necessary sacrifice of beer in order to belong to the "Goose Club," which provides each member with a goose for his Christmas dinner, and to the "Burying Club," so that his wife (who is always assumed to survive him), may bury him decently. The "Blanket Club" is an enterprise for the women folk. Such clubs contribute greatly to the comfort of the rural home, and to the self-respect of the villager; and they are a feature of communal life which should greatly interest the economist.

In France there is the "Trousseau Club," which does much to obviate haphazard marriages and hasty, inadequate and improvident preparation on the part of the young woman. One of the greatest hindrances to the happiness of married life among working people in the towns, states a recent number of *Reforme Sociale*, is the lack of a trousseau for the bride; in fact, without it the home is not founded at all—the nest is not built, "simply because there are no feathers." To meet this un-

toward phase of life the "Oeuvre du Trousseau" was founded—a society which induces young girls to begin at nine to make and to store up the trousseau, which is to be handed over to them at the age of eighteen. At fourteen, if the girl has paid regularly the dues of fifty centimes per month, and has attended the sewing meetings of the society, she becomes a director of the concern, by right of her stake in the business, and at eighteen can withdraw her profits in the shape of an excellent trousseau—consisting of seventy-three pieces of household and personal linen—made by her own hands, or, in any case, wholly hand made, and of excellent material. "Who is so likely," comments the *Evening Post*, "to keep her linen closet in good order and replenished as she to whom it represents nine years of small economies and countless hours of effort." This "Oeuvre" is carried on now in more than sixty towns of France, not as a charity dependent on the caprice of the philanthropist, but as a regular business concern—in which fact lies its great and all-important merit.

BIBLIOGRAPHICAL

The Treatment of Fractures; with Notes on a Few Common Dislocations.—By Charles L. Scudder, M.D., Surgeon to the Massachusetts General Hospital. Fifth Edition, Revised and Enlarged. Octavo of 563 pages, with 739 original illustrations. Philadelphia and London: W. B. Saunders & Company, 1905. Polished Buckram, \$5.00 net; Half Morocco, \$6.00 net.

It is with pleasure that we welcome a new edition of this excellent work. It is, indeed, a most remarkable book, and the author and publishers are to be congratulated upon its publication. In this, the fifth edition, Dr. Scudder has added some fifty new illustrations, many of them X-ray plates, illustrating the actual line of fracture. The text also has been very carefully revised and new matter added throughout. Important changes have been made in the treatment of fractures of the neck of the femur, bringing this part of the book in accord with the latest advances. The 739 illustrations do what they should—they *illustrate*, showing the reader just what is intended. Undoubtedly this feature has aided greatly in the success of the work.

Human Physiology.—Prepared with Special Reference to Students of Medicine. By Joseph H. Raymond, A.M., M.D., Professor of Physiology and Hygiene, Long Island College Hospital, New York City. Third edition, thoroughly revised. Octavo volume of 687 pages, containing 444 illustrations, some in colors, and four full-page lithographic plates. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$3.50 net.

It is evident that in revising his excellent work for the new third edition, the author has spared no labor to bring it up to present-day knowledge. Every page shows evidence of careful revision, and in that portion devoted to the physiology of nutrition, Chittenden's valuable contributions have been included. Besides more fully elaborating many topics previously discussed in the former edition, the author has introduced a number of new subjects, among which are the Influences of Alcoholic Fluids on the Excre-

tion of Uric Acid, Hemolysis and Bacteriolysis, and Ovarian and Abdominal Pregnancy. The text is fully and practically illustrated, and the volume has no superior in its up-to-date and accurate information.

Handbook of Anatomy.—Being a Complete Compend of Anatomy, including the Anatomy of the Viscera and Numerous Tables. By James K. Young, M.D., Professor of Orthopaedic Surgery, Philadelphia Polyclinic; Clinical Professor of Orthopaedic Surgery, Woman's Medical College of Pennsylvania; Instructor in Orthopaedic Surgery, University of Pennsylvania; Fellow of the College of Physicians of Philadelphia; Fellow of the Philadelphia Academy of Surgery; Fellow of the American Orthopaedic Association; Member of the American Medical Association, etc. Second edition, revised and enlarged. With 171 engravings, some in colors. Crown Octavo, 404 Pages, Extra Flexible Cloth, rounded corners, \$1.50, net. F. A. Davis Company, Philadelphia.

This excellent manual has not only been brought to date in the present edition, but the size of its pages has been enlarged and increased in number, and the illustrations have been greatly augmented. The general practitioner as well as the student will find the book of great service. Special attention has been given to the anatomy of the brain and nervous system. We cannot commend the book too highly.

The Surgical Assistant.—A Manual for Students, Practitioners, Hospital Internes and Nurses. By Walter M. Brickner, B.S., M.D., Assistant Surgeon, Mt. Sinai Hospital, Out Patient Department., etc. 360 pages. 123 original illustrations and 116 illustrations of surgical instruments. New York: The International Journal of Surgery Co., 1905. Price, \$2, net.

This manual is one of the important books of the year, inasmuch as it fills a place in medical literature that has hitherto been unfilled. It certainly meets a widespread demand in a highly acceptable manner, and it is sure to attain immediate and lasting popularity.

The book is not too large for the doctor's overcoat pocket, nor the nurse's satchel, yet it covers the entire subject. The first two chapters deal, respectively, with the *general conduct of the assistant and the hospital interne* and contains much practical sense and sound advice for young men to take to heart.

The second part of the book deals with the most commonly performed operations, describing them step by step, from the assistant's standpoint.

A useful appendix to the work consists in the *preliminary preparation and routine after treatment of operative cases*, the various methods of preparing suture material, iodoform gauze, etc., etc., and a *formulary of surgical solutions and wound applications*, etc.

It is a book that no young practitioner should be without, as it will prove of the greatest value to him in his every-day work. Likewise it should be in the hands of every nurse and hospital interne. Its use will not only assure great efficiency in everything pertaining to surgical operations, but will prevent embarrassing delays and annoyances caused by inexperience or lack of knowledge.

Diseases of the Kidney, Diseases of the Spleen, and Hemorrhagic Diseases.—By Drs. H. Senator and M. Litten, of Berlin. Edited, with additions, by James

B. Herrick, M.D., Professor of Medicine in Rush Medical College, Chicago. Octavo of 816 pages, illustrated. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$5, net; Half Morocco, \$6, net.

With the appearance of this, the eleventh volume of Saunders' American edition of Nothnagel's Practice, the work nears completion, the final volume on the Heart being now in active preparation. Like the others, this volume can be taken as the acme of knowledge on the subjects embraced. Professor Senator's clear style, systematic arrangement of facts, and logical reasoning make his articles on the Kidney indispensable to the practitioner. The editor, Dr. Herrick, has enlarged on certain points whenever necessary, especially regarding treatment, diagnosis, urinary analysis, etc., so as to increase the value of the work to the general practitioner. He has also added articles on Cryoscopy and Phloridzin Glycosuria.

The sections on the Spleen and the Hemorrhagic Diseases were written by Professor Litten, whose pioneer work in these fields is widely known. The articles on the Mosquito and its relation to Malaria, on Splenic Anemia, on Congenital Icterus with Splenomegaly, and on the X-rays in the treatment of Leukemia have been brought down to date by the editor. Indeed, the editor's interpolations add greatly to the practical value of the volume, and we are sure such an authoritative work on these subjects has never before been published.

The work should certainly find place in every medical library.

A Syllabus of Materia Medica.—Compiled by Warren Coleman, M.D. Professor of Clinical Medicine and Instructor in Materia Medica and Therapeutics in Cornell University Medical College; Assistant Visiting Physician to Bellevue Hospital. Second edition. New York. William Wood & Company, 1905. 16mo, pp. 189.

This little book will be found of service to the student in a most difficult subject. It has been prepared by the author, after an experience of several years in actual class-room work, and ought to fill a want. It is the simplest arrangement we have seen, and very concise.

A Text-Book on the Practice of Medicine.—For Practitioners and Students, by James Magoffin French, A.M., M.D. Formerly Lecturer on the Theory and Practice of Medicine, Medical College of Ohio, Cincinnati. Second revised edition. Octavo volume, 800 pages, illustrated by 11 full-page plates and 50 wood engravings. Price, muslin, \$4, net; Sheep, \$4.75, net. New York. William Wood & Company.

The timeliness of this book is demonstrated by the early demand for a second edition. No attempt has been made by the author to record all the theories that have been advanced in the literature, but only those that are generally accepted or the truth of which is attested by the best authority. The principal changes will be found in the sections on the acute infectious diseases and animal parasites. Several chapters have been rearranged in order to throw all the acute infections into one group, agreeably to the clinical order in which they are usually studied instead of the etiological relation followed in the first edition. New methods of treatment have been referred to as their im-

portance seemed to justify. The size of the book remains practically the same. This is an ideal book for the busy practitioner who wishes to keep abreast of the times—to have at his command an authoritative treatise on medicine giving accepted theories and most approved methods of treatment.

The text is classically expressed in concise language, easy to read, and admirably arranged for reference.

The work may be classed as a complete hand-book of the practice of medicine, and perfectly suited to its purpose.

A Text-Book of Physiology, Normal and Pathological.

—For Students and Practitioners of Medicine. By Winfield S. Hall, Ph.D., M.D., (Leipzig). Professor of Physiology, Northwestern University Medical School, Chicago; Member of the American Physiological Society; Member of American Association for the Advancement of Science, etc., etc. New (2d) edition, revised and enlarged. In one octavo volume of 795 pages with 339 engravings and three full-page colored plates. Cloth, \$4, net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1905.

The author says that the most notable additions—and there are many—to the present edition of his book are the sub-chapters on Pathologic Physiology, and we quite agree with him. It is evident that the author is a critical student of his own book, with, of course, favorable results to his readers.

The great and important point of this work which we emphasized in our review of a former edition, is the application of Physiology to Clinical medicine. The student will take this book into practice with him, and the practitioner requires it to brush up his physiology of disease as well as of health.

It is a great step in advance in the practical study of medicine, and no clinician can afford to be without it.

The present edition is greatly increased in size over the former, but the price remains the same, and is very small.

Superstition in Medicine.—By Prof. Dr. Hugo Magnus. Authorized translation from the German, Edited by Dr. Julius L. Salinger, late Assistant Professor of Clinical Medicine, Jefferson Medical College; Physician to the Philadelphia General Hospital, etc. New York and London. Funk & Wagnalls Co. 1905. pp. 205. 12mo.

This volume contains a history of the erroneous ideas and fanciful beliefs that have prevailed in the world with regard to illness and its cure, from the days of ancient Rome to the present time.

The statements set forth should not be construed as reflecting the development of theology or medicine at the time, but as the belief of the people existing in these periods. It is not a criticism of a system, but a criticism of man.

Physical Diagnosis.—By Richard C. Cabot, M.D., Instructor in medicine in Harvard University. Third Edition, Revised and Enlarged. With five plates and two hundred and forty figures in the text. New York. William Wood & Company. 1905. 577 pp. Octavo.

This volume presents in practical form an account of the diagnostic methods and processes required in the intelligent practice of medicine to-day. The author says that all he has described he knows by prolonged use, in connection with his position as Instructor in a great Uni-

versity. The author has wisely attempted to combine clinical diagnosis with laboratory diagnosis in the interest of more successful practice. The book is highly commended for its purpose.

International Clinics.—By leading members of the Medical Profession throughout the world. Edited by A. O. J. Kelly, A.M., M.D., Vol. II. Fifteenth Series. 1905. Philadelphia and London. J. B. Lippincott Company. 1905. 310 pp. Octavo. \$2.

This volume seems to be one of the best of the series, and we are confident no one could make a better investment of two dollars than by obtaining this book. The articles are timely, and of great interest, and the publisher would gladly, no doubt, send to any correspondent a list of the contents for consideration if so desired.

There can be no question as to the value of this publication.

RETROSPECTIVE THERAPEUTICS

The Schott Method of Treating Diseases of the Heart and Blood Vessels

is described by Anders (*Jour. A. M. A.*, January 14, '05). The Nauheim baths include the use of waters of various strengths and immersions of various lengths. At first the waters of the so-called thermal baths—freed to a certain extent from their natural gas—are employed; there follow then upon these thermal-sprudel baths, then pure sprudel and finally the flowing or "strom-sprudel" in selected cases. The latter possesses the greatest strength and pass through and leave the tub during the immersion. Nauheim waters contain from 2 to 3 per cent. of sodium chloride and from 2 to 3 per 1,000 of calcium chloride, besides various forms of iron and a large amount of carbon dioxide. In cardiac insufficiency a more vigorous systole is brought about with diminution in the size of the dilated heart and a reduction of the pulse rate. The usual accompaniments of an impaired circulation—in the lungs, liver, stomach and kidneys, as well as the anasarca—disappear with an increase of the heart's action. Not only are the baths directly efficacious; but there is indirect benefit through irritation of the cutaneous sensory nerve filaments and stimulation of the vaso-motor, cardiac and other nerve centres. The "resistance movements" are essential to the Schott method as practical at Nauheim; their principal effect is on the cardio-vascular rather than on the muscular systems. Anders from his observations finds that apart from the favorable action of the Schott method on the myocardium the improvement in the vascular changes was shown by the increased lumen of the vessels and gain in the volume of the pulse. Angina pectoris yields with comparative rapidity to this treatment; wherefore Anders judges that many examples of this disorder are probably dependent on abnormal vaso-motor influences. This method is to be preferred to any other for restoring compensation in simple dilatation or in chronic valvitis. In cases in which digitalis has lost its effect, this drug was found to act well after a course of baths. The Schott method is most salutary in moderate degrees of arterio-sclerosis with embarrassed heart action. Atheromatous changes in the coronary arteries accompanied by angina were markedly relieved; several cases of exophthalmic goitre yielded to this treatment. Anders considers artificial Nauheim baths to be of doubtful value; success depends upon the favorable environment, relief from the strenuous

life and from business cares and the careful regulation of the treatment, which requires suitable equipment and constant supervision.

A groundless fear was expressed by a Justice of the Supreme Court, who granted an injunction restraining the Health authorities from establishing a clinic for consumptives in Brooklyn. He declared that if the breathing of street dust containing the germs of tuberculosis is a menace to health, the more there are in the air the greater will be the risk, and that a clinic thus established would bring many more victims in the proposed neighborhood and would thus materially increase the danger to dwellers in its vicinity. One of the grounds upon which the injunction was asked was that property valuations would thus be lessened.

Conjunctival Irritation from Animal Emanations are discussed by W. C. Posey, (*Jour. A. M. A.*, June 3, '05), who describes three cases in which temporary irritation was induced by proximity to horses. In all three patients there was also nasal irritation; and in one similar symptoms were caused by handling a cat. These conditions are not referred to in the literature; but rhinologists, notably Kyle, have long noticed nasal irritation from animal emanations. Dr. S. Weir Mitchell has come upon many cases of conjunctivitis caused by proximity to cats. Kyle's theory of hay fever is that it is due to some chemical change in the mucous secretions; and he has found that in nearly all these cases the secretions showed an excess of the ammonia salts. This theory, while it may explain the susceptibility, sheds no light upon the nature of the agents which excite the irritation in the susceptible individuals.

Colds are common in cold weather because more impure air is breathed at that time and because the skin is kept tender with overclothing. People who live close to nature are exempt, declares N. James (*N. Y. Med. News*, June 17, '05). As far as the atmosphere is concerned, a healthy person thrives about as well in the city as in the country. The indoor air, however, is foul and the percentage of moisture is below normal, causing too rapid evaporation from the body, with dilation of the vessels. The daily cold bath, ribbed or meshed cotton, linen or ramie, not woolen underwear, and plenty of ventilation are advised with light weight bed covering and the abolition of steam radiators. (We should suggest that the bed clothing be always of sufficient warmth to obviate chilling of the body; and that hot bottles be put to the feet in severe temperatures.)

The Public House as a source of Phthisis is dwelt upon by Ransome (*La Rev. Internat. de la Tuber.*, January, '05). The mortality is shown by statistics to have been influenced in other ways than by the mere conditions of work; moreover, the high phthisis mortality among males in certain towns could scarcely be accounted for by the respective occupations of the two sexes. During the past twenty years the mortality rate from this disease has fallen both for males and females, yet the male rate is still the higher and it has also come down much more slowly. The author infers that the frequency of resort by men to public houses may have had something to do with these results. From a sanitary aspect the public-house is certainly open to suspicion as an infective centre. Such places are often overcrowded, dark, dirty, and ill-ventilated, many habitués are phthisical. Many in spitting aim for the cuspidor; most miss their aim, so that the sputum is deposited upon the sand or the sawdust. Ransome quotes

Niven with approval. We should observe, however, that in many English "pubs" women are to be seen; oftentimes with their children, who play in the sand or sawdust while their mothers guzzle and gossip. We cannot believe otherwise than that the workshop in which the phthisical workman remains for so many hours is still the most potent of all factors, even more so than the home, in the development of phthisis.

The Profession of "Getting Hurt" is the title of an entertaining article in *Pearson's Magazine* for June by Theodore Waters. It seems that nowadays more than ever before, professional malingers are being exposed to the gaze of a rather "easy" public—was there ever one more so. Shyster lawyers and doctors without the code are also exposed; and the writer condemns the benumbed conscience of the public with relation to damage suits against corporations and municipalities. Many instances are cited showing the swarm of lawyers that beset every person whose injuries are reported in the papers. In Chicago, "by a curious coincidence, the clients of many of these law firms have employed the same doctor." In the suits on file against the City "one doctor was found to have been in attendance in over one hundred." No doubt other cities have like unsavory records, if the facts were but set forth.

In the management of labor absolute asepsis is essential as regards the patient, the lying-in room and the person of the accoucheur (*Medical Visitor*). There must be a careful diagnosis of the position of the child before the completion of the first stage; don't interfere with the labor except for cause; deliver the placenta whole; don't leave the patient until there is a good contraction of the uterus; after delivery, inspect carefully for lacerations, which, if made, should be repaired at once. And don't hesitate to admit a laceration, which should rightly be attributed to the infant's head. Besides, only the men who never make post-partum inspections of their cases, never have perineal lacerations; all the same such tears cannot remain concealed or unappreciated by the patient.

A new sign of "Graves Disease" is communicated to *Treatment*, May, '05, by E. Blake. "In a certain proportion" of cases "but not in all, the heart is found to work more rapidly on lying down than in the erect posture." This sign is best seen in recent cases. It is often absent in those advanced because the latter are drifting into the converse condition—myxoedema, which is characterized by Brady cardia.

How do you get it off? Dr. Keogh, in the *Northwestern Lancet* has his patients suffering from varicose veins provided with a zinc-glue bandage made of gelatin, glycerin, zinc oxide and water, heated in a water bath and applied to the bare skin with a painter's brush. Then a gauze or cheese cloth bandage is applied very evenly and not too tight. This is painted with a zinc glue, and a new bandage applied outside of it. Such a bandage may be worn up to two months without removal, the manner of which is not stated.

Trachoma has markedly increased among the immigrants arriving in New York Harbor. As a result, most of the patients in the hospital at Ellis Island are held there because of this disease. Dr. Stoner, Chief of the Marine Hospital Corps stationed in the port of New York, who has returned from a tour of inspection on the Canadian border, thinks that cases have been held up on the other side until a favorable opportunity was secured to rush them into this country, when "all

were shipped over in a bunch." Most of the cases held up during June and the early part of July are from Mediterranean ports, where the disease is very rife.

The original habitat of syphilis is discussed by Orton (*Univ. Penn. Med. Bull.*, April, '05). There are three theories: That the disease prevailed in both the eastern and western worlds before Columbus' discovery; that it was unknown in Europe until Columbus' men took it back with them; that it originated in the old world and was brought by these voyagers to the new, together with some other more or less valuable blessings of civilization. Orton studied 127 skeletons exhumed at the Baum Village site, in the valley of a tributary of the Scioto River, states the *N. Y. Medical Journal*; of these twenty-one were found to have had lesions, judged after very painstaking study, to be syphilitic. Orton is so thorough as to distinguish between luetic lesions and those of osteitis deformans, a disease which he considers may possibly have been frequent in the days of the Mound Builders.

This gruesome material undoubtedly antedates the voyages of Columbus, and the diagnosis is made upon the following points: In long bones the changes observed affected chiefly the diaphyses, with a predominance in the bones most exposed to injury, and consisted of large exostoses and osteophytes with concurrent rarefying and condensing osteitis in the same specimens. In sixty per cent. of the syphilitic skeletons the bones affected, in the order of frequency, were the tibia, the ulna, the cranial bones and the sternum. We cannot then, if we accept Orton's deductions, assume that Columbus' men brought syphilis to a continent on which it was hitherto unknown. However, it is likely, as he suggests, that these sailors encountered a "strain" of the disease so potent that, when they returned, it gave rise to the Neapolitan outbreak, which was so virulent that men supposed a new disease had been transferred from beyond the seas. It was the same with Wellington's soldiers, who, in Spain encountered a brand of syphilis, to which they were unacclimated, much more virulent than the home type, with dreadful and unusual consequences.

Copper foil in the destruction of typhoid and colon bacilli in drinking water is recommended by Kraemer (*Am. Med.*, February 18, '05), who confirms the experiments of Moore and Kellerman. However, no proofs are adduced as to freedom from toxic effects when water thus purified is taken for any length of time into the system. Tap water was sterilized under three different conditions; distilled, filtered and unfiltered. 200 c.c. of water thus prepared were placed in each of twelve sterile Erlenmeyer flasks, and there was then added to each flask the same amount of fresh bouillon cultures of typhoid or colon bacilli. The number of organisms was then estimated in one c.c. of water taken from each of the flasks immediately after inoculation. Strips of copper foil 15 mm. wide and 18 c.m. long, were placed in six of the flasks and the organisms again counted after varying periods of time. The effects upon the samples with and without the copper foil were shown. At the end of four hours, the triple distilled water contain 7.665 colon bacilli; the unfiltered water the same number; and the filtered tap water 5.075. While in none of the waters in which copper foil had been placed was there a single organism to be found. Kraemer concludes that: intestinal bacteria are completely destroyed by placing clean copper foil in water containing them;

the purifying effects of colloidal copper and copper sulphate are in a quantitative sense much like those of filtration; only the organisms are completely destroyed. Water may be purified for drinking purposes by placing strips of copper foil $3\frac{1}{2}$ inches square in a quart of water and allowing it to stand for six or eight hours. Bolton (*Internat. Med. Mag.*, December, '04), in agreement with Nagelli and Miller, writes that copper wire and copper coins were in his experiments merely polished with ammonia and sand and then rinsed with water; otherwise pure copper and copper foil were used. There was no marked difference in the behavior of the germs toward the copper in these various forms. There is a clear zone, in some cases narrower, in others wider, and then a narrow zone where there is increased growth. This intensified zone does not have as sharply marked borders as with some other metals. In nearly all cases the medium around the copper becomes greenish and the foil becomes dissolved away, sometimes disappearing entirely. We should wait for further scientific results before making practical use of copper in the manner here indicated.

Etiology and Pathology of Gastric Ulcer.—In a masterly paper having this title, J. McFarland (*Medicine*) points out that this lesion may arise from numerous and very diverse causes, though in all probability this form of ulcer is not identical with those known to clinicians as the round or peptic ulcer. The etiology of the gastric ulcer requires the co-operation of two factors; the corrosive gastric juice; and a local loss of resisting power in the tissues with which the juice comes in contact. The former, it would seem, need have no abnormal composition and need not be excessively acid. The last resisting power of the tissue is the essential factor. This cannot be common to the whole gastric tissue, else the lesion could not be local. It must depend upon some condition operating upon a circumscribed area. It is very improbable that traumatism here comes into play, because experimental, operative and accidental injuries to the stomach generally heal kindly. The condition referred to must therefore be nutritional and vascular; but whether the vascular disturbance depends upon traumatic injuries of minute vessels resulting from overdistention, pressure, embolism, thrombosis, infection, intoxication or defective innervation remains to be shown. Probably all these have to do with particular cases. The nature of the defective tissue resistance is obscure and will probably remain so, as the normal immunity of tissue so long has done. One now no longer refers the immunity of the gastric mucosa to the alkaline mucus that covers it or to the alkaline blood circulating in its capillaries. It is simply the immunity of the normal living tissue to its own products. As soon as the vitality of the tissue is disturbed this immunity fails in part, when it is lost it disappears. That of the stomach to the action of pepsin is referred to the alkalization of the hydrochloric acid by the blood salts; but how then are we to explain the immunity of the intestine to trypsin, which is active in alkaline media? Both are due to the natural immunity of the respective cells to the respective enzymes, the nature of which is unknown. The association of gastric ulcer with anaemia is too frequent to be accidental. We know not however whether the anaemia (chlorosis) is the primary condition predisposing to ulcer by inducing hyperchlorhydria; or whether the chlorosis is the result of the malnutrition secondary to the gastric disturb-

ance. Two complications are important to consider: hemorrhage; and perforation. Hemorrhage depends upon the erosion of a blood vessel; what particular vessel depends upon the position of the ulcer, its depth and its relation to and extension into other viscera? It may be unimportant when small vessels are opened, or may be fatal when good-sized arteries are eroded. Perforation may take place without symptoms, when preliminary adhesions form between the stomach and some neighboring viscus, or may at once pour out the gastric contents into the abdominal cavity; immediate surgical interference is then essential. There may—rarely—be escape of the gastric contents into the pleura or pericardium, the mediastinum or even into the lung. Rarely, portal thrombosis may be occasioned; and septic infections of the associated organs with pyaemia may supervene.

Tetanus and blank cartridges. We recently considered the mode of infection in this disease; and must here in addition allude to an important paper by Dolley (*Jour. A. M. A.*) in which the *B. aerogenes capsulatus* is stated to have been present in a large proportion of cartridge wads examined. Inoculations from wads into rats, guinea-pigs and rabbits produced also characteristic symptoms of tetanus. The powder of the varieties of cartridges examined was negative for both *B. tetani* and *B. aerogenes capsulatus*. Dolley's efforts to isolate *B. tetani* from the wads were unsuccessful. He considers there is abundant evidence from clinical observation and animal experiments, that the wads of certain blank cartridges contain *B. tetani*. It would appear, then, that not only from the dirt of the ground is tetanus to be feared but also from cartridge wads.

Fatigue antitoxine is to be obtained by injecting into horses a specific toxine derived from muscles of animals which have been worked to death. W. Weichardt (*Deut. Med. Woch.*) pulled guinea pigs back and forth over rough ground until they were very tired and there came a sinking of the bodily temperature. He then obtained some muscular plasma under careful asepsis which, as compared with the normal flesh, tasted bitter and was reddish in color. Animals injected with it in any amount died promptly. He secured some of the dialysable matter of the residue, containing a toxine which in a few weeks became absolutely dry, and at low temperature remained active. Injected into animals it produced an antitoxine, consumption of which produces an immunity against weariness. They are so thorough, these German scientists, even to the point of sampling the meat of the guinea-pig; and so indefatigable—no likelihood of their ever requiring for themselves injections of the fatigue antitoxine which they so ingeniously evolve.

Tuberculosis among Negroes. The New York Health Department has set aside a special evening class for the treatment among negroes of this disease, which destroys half the adults of this race. The establishment of this class was due to the request made by the colored physicians of the city. All of the physicians in attendance are negroes; and there is a colored nurse. Treatment and medicines are of course free. Colored patients may also attend the other classes of the Department's clinic for the treatment of communicable pulmonary diseases, which are open daily from nine until four.

The causation of albuminuria in aortic insufficiency is classified by V. Leube (*Munch. Med. Woch.*) as fol-

lows: 1. a complicating perenchymatous nephritis may exist, as where the endocarditis is caused by diphtheria. This form is generally amenable to treatment, while the endocarditis persists. 2. There may be a general atheroma which also involves the renal vessels, leading to arterio-sclerotic kidney. This is especially common with aortic insufficiency. 3. When the energy of the heart sinks and the cardiac muscle undergoes fatty degeneration, stasis, followed by cyanotic induration, is found in all the organs. This occurs only in the later stages of cardiac insufficiency. Besides these there is another form of albuminuria, characteristic for the early stages of aortic insufficiency and not accompanied by cyanosis, edema, etc. The urine is not diminished in amount, the specific gravity is relatively low, and the amount of albumen, hyaline and granular casts very slight; the marked variations in pressure in kidneys of this kind are responsible for certain anatomical changes. The walls of the arteries and capillaries are much thickened, so that the amount of blood carried to the kidneys is less than normal. The liver and spleen show similar lesions, but never the lungs.

Hypodermoclysis is most valuable in hemorrhage, shock, uraemia, puerperal eclampsia, typhoid fever, pneumonia and anaemia (W. P. McIntosh, *Med. Rec.*, June 10, '05). It is recommended in poisoning from illuminating gas, ether and opium, as it dilutes the poison and favors elimination; and in diseases attended with great loss of body fluids, as cholera, cholera infantum, enterocolitis. It is one of the best remedies in septicæmia. Saline solution should be used in puerperal sepsis, because of the leucocytosis it induces. It is to be used in diabetic coma, restoring consciousness and prolonging life. McIntosh has got good results in several cases of rheumatism, both muscular and articular.

Some notes on plague are given by A. M. Elliot, (*Lancet*, June 10, '05) based upon a study of some 9,000 cases seen in India. Local reaction after infection takes place not at the original focus, but in the nearest groups of lymphatic glands. The seat of election is the lymphatic system. Fowls, pigeons and ducks do not in his opinion contract the disease; rats, and next guinea pigs are the most susceptible among animals. Cats may contract the disease and may convey it to man. The channels of infection are: the skin and mucous membranes; the alimentary canal; the respiratory system. Inguinal buboes occur more frequently in adult males than in women and children; auxiliary in women than in men and children; cervical most frequently in children. There are three types of the disease corresponding to the channels of infection; bubonic, pneumonic, and alimentary. Either of these may take on a septicemic form, when death inevitably results. Elliot inclines to the belief that there are two forms of the plague bacillus—the acute and the chronic. The latter continues the disease from one epidemic to another, while the former gives the three types mentioned, each being entirely dependent on the channel of entrance, and occasioning a death rate according to the group or groups of glands primarily infected. The gravity of the disease is greater in auxiliary and cervical infection than in inguinal. Cardiac stimulants are the only effective remedies. As suppuration advances the plague bacillus disappears, wherefore Elliot suggests that the streptococci and staphylococci may be inimical to the bacillus. Anti-streptococcus serum led to 13 recoveries in 21 cases.

Gigantism and Infantilism.—M. Pagniez observes (*La Presse Medic.*), concerning the former, that in addition to increase in height, there is also a want of harmony, both functional and anatomical. Infantile gigantism, although apparently a contradiction in terms, really occurs, consisting in the union in the same individual of the chief features of the two abnormal conditions. Amongst the most remarkable abnormalities in gigantism is the extreme growth due to the epiphyses not being united to the bone shafts, and to persistence of the cartilages. Radiography demonstrates these conditions. Gigantism is often associated with a more or less puerile mental condition, with undeveloped genitals and hairy growth and with a tendency to genu valgum which are characteristic of infantilism. In giants there is inequality in the development of the different limbs—the legs out of all proportion to the rest of the body; and it is to their extreme length that the increase of height is due. The infantile giant is especially characterized by the persistence in middle life of one or more pre-adolescent conditions. An individual may in the first instance present features of infantilism and only later may the osteogenetic function, by its persistence, lead to the development of gigantism. The author considers the question—is acromegaly occurring in a giant a new disease or merely a transformation of a morbid condition already present? Much difference of opinion here exists. Much must still be observed and experimented upon before definite pronouncement can be made concerning the existence of internal secretions in producing these deviations from the normal type of growth.

Railway spine is discussed by E. B. Angell (*Med. News*, May 6, '05), who believes that the cord is rarely damaged unless the vertebrae are dislocated or fractured. Concussion, sprain of muscles or ligament, general bruises or shock are insufficient to cause serious disturbance of the cord itself. Severe concussion may (rarely) cause hemorrhage into the cord. The symptoms are out of all proportion to the injuries received; the disturbance is of the mind, not of the body. The changing of the symptoms from day to day, and shifting of the areas painful to pressure, makes the diagnosis of a permanent lesion absurd. The disorder is functional. The initial disturbance is due to the shock or fear; "an imperative idea grows by what it feeds upon." The condition is rarely met with in those having well-disciplined minds. It is a delusion, and yet a true disorder; the disability is as definite for the time being as though a limb had been lost, and is one for which compensation may rightly be claimed. We are inclined to disagree with some of these opinions. The cord is made up of perhaps the most delicate tissues in the body, and the result of an injury may be structural (and not purely functional). Even the microscope might not be able to detect the pathological changes which might supervene. In coccygodynia, usually the result of traumatism, there is generally no appreciable anatomical lesion found; but it is a very real disease nevertheless and one often requiring surgical intervention, which generally brings relief. We are glad to note, moreover, that functional changes, such as are induced by shock, are beginning to receive the attention they are entitled to, and which they greatly deserve—for they are often more serious than structural lesions.

Cargile membrane, states *Medical Notes and Queries*, is peritoneum from the intestine of the ox, subjected to certain processes and finally sterilized—a thin, trans-

lucent almost homogeneous acellular material in many ways resembling gold-beater's skin. It is to be used between denuded peritoneal surfaces, over stumps, or any other wounded areas, to prevent the formation of adhesions, the membrane itself undergoing absorption in time. R. Morris reports favorable experiments with this membrane upon rabbits. A. B. Craig and A. G. Ellis, of Philadelphia, do not however make encouraging reports. Craig operated upon dogs in the peritoneal and cranial cavities and upon nerves and tendons; the membrane did not stay in place unless sutured. In the cranium and to around tendons and nerves the membrane appears to be of value in preventing adhesions. The chromicized variety longest resists absorption and in general gives best results. Microscopic investigation by Ellis showed that the membrane acts as an irritant, new tissue being formed around it in every instance. Its ultimate fate, however, is absorption. Phagocytosis, as a factor in its removal, is not demonstrable, which appears to be due to the action of lytic substances in the body fluids.

Diabetes in Railroad Employees has been studied by Navarre (*Semaine Medicale*, April 19, '05). On the line from Lyons to the Mediterranean 200 cases were reported by the medical officers of the road—an average of 3 per 1,000. The proportion is much higher among engineers and conductors than among other employees. Navarre concludes that vibrations and jars evidently favor the development of diabetes.

Facts about the Rose City are set forth by the *Sunset Magazine*. It is the queen city of the north-west coast. The chief exports are lumber, flour and grain. There is an annual wholesale business of \$175,000,000; and an annual factory product of \$50,000,000. Portland is called as above because of the large number of beautiful roses that are in bloom in this northwestern metropolis all the year around. The warm currents of the Pacific render the climate exceptionally mild. It is in the first rank of American cities for health, the death rate being 9.5 per 1,000 of population. Finally, and an achievement really memorable because of the delightful manner in which it was done—the City of Roses has most handsomely entertained the American Medical Association.

Mental Hygiene in Childhood.—Hyslop (*Jour. State Med.*), considers the present age to be one of too early and too rapid mental growth and the early and severe taxes upon the resources of the brain to be undoubtedly at the root of increased mental disease. The first years of life should be mainly occupied by moral and physical training, the amount of mental cultivation of which a child's brain is capable being much overestimated. Compulsory education should not be enforced in at least one-half of the children at present, if the ultimate mental and physical welfare of the race is to be considered.

Diabetes mellitus is studied by E. P. Joslin (*Boston Med. & Surg. Jour.*, July 6, '05), upon the "fundamental idea" that rest to the diseased function will lead to an improvement in the organism's ability to attend properly to sugar metabolism. Knowledge of the carbohydrate percentage of certain standard food-stuffs is essential. That of bread and cereals is about 60; of potatoes and bananas, 20; of grape fruit and oranges, 4½ to 10; of cream and milk, 3 to 5. By means of these figures we may intelligently cut down the intake of sugar producing substances. The fermentation test

for sugar will enable us to judge of the outgo of sugar in the urine and by measuring the quantity of food and having in mind its carbohydrate equivalent we can roughly estimate whether the patient is assimilating a portion of the carbohydrates eaten, excretes an amount of sugar equal to the amount of carbohydrates in the diet; or excretes more sugar than is contained in the carbohydrates in the diet. One must first establish the tolerance for carbohydrates. "If there is none the case is hopeless." To establish the point of tolerance—first free the sugar of urine; by reduction in the quantity of strict diet to an amount just sufficient for sustenance; or, if this does not suffice, by limiting the intake of albumen; or by means of a vegetable diet if sugar is still present in the urine; or, if these measures fail, by resort to a starvation diet. Next, the urine being sugar free, carbohydrate foods are slowly added to the diet, beginning with teaspoonful doses of cream—increased until the patient's tolerance has increased; one-half pint milk is then to be added and by the end of two or three months the patient will probably be able to take a quart of milk and cream without the appearance of sugar in the urine. Add now half a grape fruit; then, after a while, a tablespoonful of oatmeal. Many other valuable suggestions are given by Joslin. We agree with him that the establishment of a proper diet is by far the most important feature of the treatment; without this drugs are absolutely useless.

Marmorek's serum (*Jour. A. M. A.*, July 1, '05) was investigated by E. Lewin, who was sent to Paris by the Swedish government to examine into its production and action. After several months' study he became convinced that the results investigated justify further trials on a large scale. Marmorek has a record of 400 cases of whom fully 100 can be regarded as cured. The proportion in 100 cases of surgical tuberculosis was 80 cured or immeasurably improved without any adjuvant measures. (We consider that just as good and perhaps better results in both surgical tuberculosis and otherwise, are obtained in sanatoria and like institutions without the use of serum; although we are heartily in accord with experiments with sera.) On the basis of Dr. Lewin's report the serum is now being extensively tried in Sweden, Marmorek having sent 2,000 vials free of charge to that end. The serum is declared to have no toxic action, as it contains the antitoxins also.

An inverted appendix was found by Bremer (*Am. Med.*, January 4, '05) in a female, aged twenty-two, suffering from symptoms of acute appendicitis. The abdomen being opened, the appendix could not be found after prolonged search. Five months the patient reappeared with constant pain and tenderness in the right iliac fossa. The abdomen was again opened and on palpating the cecum an elongated oval body could be felt within its lumen. The intestine was opened longitudinally and the appendix, inverted, was found projecting from its attachment. The mass was removed and the wound in the cecum and colon sutured. A perfect recovery without return of symptoms resulted.

Diet in chronic diarrhea should vary with the type of the disease (*Friedenwald and Rubröh*). In the nervous type the patient should be encouraged to refrain from going to stool except at a certain hour. In all forms of the disease foods which tend to stimulate the bowel should be avoided. Coarse, indigestible foods, especially those containing a great deal of cellulose (cabbage,

pickles, carrots, salads, turnips), should be forbidden; as also carbonated beverages including champagne and beer. Allowable foods are broths, tea, red wine, farina, rice and barley gruels. Raw milk usually is laxative; but it is constipating when diluted with limewater or brandy. It may increase the number of stools in certain cases. Rest and milk cures may result in recovery.

Nitroglycerin does not perceptibly affect high arterial pressure in man nor is dilatation of the blood vessels apparent. This is the result of Loomis's experiments with the sphygmomanometer. 1-100th grain of the drug is too small to produce any effect in pathological conditions; 1-50th grain is a minimum dose. Even in large and repeated doses Loomis has never seen any ill effects; it is a perfectly safe drug. Its effects are very transient. It is said to increase the quantity of urine in chronic Bright's; but Loomis has discovered no such action. In angina, migraine, asthma and like conditions due to arterial spasm nitroglycerin may be beneficial in full oft-repeated doses. It will be of no effect in arterial sclerosis where the arteries are more or less changed.

In chronic suppurative otitis Duel insists upon thorough cleansing, careful inspection and feeling the tympanum over with a probe, as far as possible, for necrotic areas (*N. Y. Med. Jour.*, April 8, '05). If the perforation be inadequate for drainage, and should there be no necrotic area, a free incision should be made in the membrana tympani, and granulations in the lower aspect curetted away. Adhesions should be divided. Nasal or pharyngeal obstructions should be removed. The tympanum and external auditory canal should then be kept constantly irrigated and mopped with cotton pledgets. Drainage can be well maintained by the use of gauze wicks running from the incision out into a good sized dressing over the auricle, renewed once or twice in twenty-four hours. This is better than frequent irrigations. Should no improvement take place under this treatment, the membrana together with the malleus and the incus should be removed and any diseased areas in the tympani walls which can be reached should be carefully curetted. Should this fail, or should there be evidence of attic or aditus necrosis, or should the tympanum be filled with a cholesteatomatous mass, or should there be a history of one or more acute exacerbations with pain and tenderness over the mastoid, the "radical operation" is essential.

The causes of iritis were classified by Chevallereau and Chaillons (*Recueil d'Ophthalmologie*). Of 131 cases 55 were women and 76 men. Most of the patients were between twenty and fifty years of age. Syphilis had existed in 39 cases, gonorrhea with arthritis in 9, rheumatism in 7, tuberculosis in 9. The clinical forms were serous and plastic iritis. Syphilitic iritis has a special physiognomy. It is of a sluggish and painless form developing from two to eight months after the initial lesion. The most acute and most painful cases are those following upon rheumatism, particularly of the gonorrheal type. In 27 cases no cause was discoverable.

Students of post-graduate institutions, urges Ely Van de Worker (*N. Y. Med. Jour.*) should be compelled to pass special state board examinations before being loosed on the community as specially qualified surgeons and gynecologists. If this be done (and the plan is a good one), the examination should be practical rather than written.

MISCELLANY

The first Parisian hospital for eye diseases among the poor of that city, it is reported, was founded by Baron Adolph de Rothschild and opened in May of this year.

Overalls at ten cents was the price recently offered by a Pittsburg store; in consequence of which a dozen customers had to be taken home in ambulances, states the *Post*.

...A woman physician, Dr. Anna F. Donoghue, died during the dreadful hot spell in July last from overwork in attending heat victims. Her professional life had been one of genuine altruism, as the manner of her death attested.

Thirty per cent. of the poultry reared in England suffer from tuberculosis, declares an officer of the National Poultry Organization Society. There are districts in England where it is impossible to carry on poultry farming owing to the presence of arian tuberculosis germs in the soil.

Epilepsy and Menstruation.—Maguin (*La Trib. Med.*) cites the case of an epileptic woman in whom for fourteen years the paroxysms coincided with the occurrence of the menses. Since puberty the two phenomena never took place independently of one another, except during one pregnancy when both the epileptic attacks and the menses ceased.

The penalty for excessive enterprise was recently paid in New York by a man who was for the third time convicted of practicing medicine without being registered. A fine of \$500 was imposed. He had, it seems, maintained an institute for producing doctors in a few weeks' time for a fee of \$50; a massage establishment; and an office in which he gave ordinary medical treatment.

Dr. Palmer Dudley, of New York City, died in Liverpool, while on his way to the International Medical Congress at St. Petersburg. A few days before sailing he evidenced pulmonary tuberculosis. Both his physician and his wife urged him to give up his trip—but ineffectively; and the latter accompanied him. He was anxious to read an important paper before the congress.

Dying doctor burns account books is reported in the lay press of a Baltimore physician, in order that his patients, many of whom were poor, "should not be pressed for payment by his administrators." He declared that they knew what they owed him, and he had no doubt, would pay his heirs when able. Unquestionably then, he must have provided for his own family beyond the danger of want.

Prof. Brouerdal's observations upon adulterants give rise to the following example in mathematics. At breakfast a man takes milk preserved with formic aldehyde; at lunch he eats a slice of ham kept fresh by borax, with spinach or French beans made green with sulphite of copper; all this he washes down with half a bottle of wine cleared with an excess of plaster of Paris; in how many years will his alimentary apparatus be utterly ruined?

The King's Evil is described by Landouzy (*Presse Med.*, May 3, '05) as it was practiced in England and France. It was the common belief that kings were possessed by divine grace of the power of curing a scrofulous patient by touching him; this was done with

much ceremony, the patient afterward receiving alms. The custom seems to have originated about the time of Edward the Confessor, and to have finally passed away with the Georges. Samuel Johnson was among the last touched, without benefit, however.

A biologic station in Greenland will be established by the Danish Government at the suggestion of a botanist. There will be buildings, motor boats, sledges, tents and other material for short expeditions, instruments, books, etc., all at an estimated cost of \$9,400. The yearly running expenses including salaries, are estimated at \$2,960. The geographical position of Greenland and the similarity of conditions with those of the northernmost part of this continent would suggest to Americans the establishment of a similar institution in Alaska.

A sanitary agreement between France and Italy has been instituted by the former and willingly accepted by the latter, by which both states shall recognize and admit the efficacy of sanitary measures taken in each other's country on board of ships coming from ports infected with plague and cholera. A ship coming from India, for example, and having been subjected to sanitary inspection in an Italian port, will be insured free pratique in a French port without further restrictions, and vice versa. There will thus be constituted a very real advantage to the commerce and navigation of both countries.

Inhaling cocaine fumes is described as a new "Tenderloin" vice in New York City. A victim was on this account moved to commit a burglary, his counsel declared; and this plea moved the court to impose a sentence of nine years in lieu of a customary one of twenty. It seems by the testimony that cocaine fiends have adopted the habit of "blowing the burners," inhaling a quantity of powder from a tube, supposedly a harmless remedy for catarrh, but which contains a large amount of cocaine and phenacetine. Quantities of this patent catarrh cure are said to be used by tenderloin habitués of both sexes.

The causes of miscarriage in most cases escape observation; commonly this condition is attributed to a traumatism or to a fall on the stairs, etc. Bonnaire (*Presse Med.*, May 3, '05) adduces the etiology as follows: The ovum plays the part of a foreign body and is expelled. The change in it may take place by death, separation or other causes, though contained in a normal uterus; or whether the ovum be healthy or not it may be contained in an intolerant or irritable uterus. There may besides be faults in the woman's general health and vitiation of the spermatozoa. Bonnaire finds that traumatism varies greatly in its power to interrupt pregnancy according to its intensity, the seat of its application, the age of the fetus, and the like.

Some border-line psychoses of alcoholism are set forth by F. P. Norbury (*Jour. A. M. A.*, March 18, 1905). Treatment is successful in the majority of cases where the individual co-operates and learns his limitations. Minor psychoses and "polyneuritic psychoses" marked by amnesia, paramnesia, and confusion with marked hallucinations, are rare in acute alcoholism, but may appear in adolescents of neurotic type; they are more frequent after adolescence and up to forty or forty-five years, and occur both in continuous drinkers and occasional delinquents. The prognosis is variable, depending on inherited frailties and moral developments. Early treatment is advisable as a preventive of major psychoses. Treatment is successful generally.

WHAT IS DISEASE?

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IT would be a stroke indeed timely should some apostle of Esculapius arise and tell us why disease actually exists; neither on the other hand do we believe it would be in the least antagonistic to that modern school of so-called scientists, the Eddyites, or Faith Curists, who claim that there is no disease. Indeed the distinctive line of demarkation between the doctrine of possibles and impossibles has never appeared to us so minutely drawn, the line that separates them being but tried and separate phases of a physical duality; the one protoplasmic, the other nervous, but unfortunately for the latter, no demonstrable force, or condition, holds ready service to defend, while to the former flocks a compound of cellular structure be it gland, muscle, or bone, always tangible. Looking at that broad and beautiful principle of waste and repair on which nature has chosen to preserve from immediate death her organic forms; together with the great function of elimination, for, as is well known, within the animal body is elaborated such materials of tissue change as speedily (if retained) serve to terminate life, yet on the whole, and following to its legitimate conclusion the ebb and flow of existence along these lines, man could, and would, die from old age only. The average strength of a man showing a curve whose apex is at the age of 35 years, approximately showing that an adult of 17 years should without difficulty be able to raise a weight of 277 pounds; at 20 years, 317 pounds; at 31 years, 440 pounds, descending to 339 pounds at 40 years; 328 at 50 years and 246 at 70 years. Inquiring as to the cause of this curve, for which the above table, howsoever imperfect, stands, elicits the well-known reply that all healthful metabolism depends in the ultimate upon the perfect balance of waste and repair of nutrition, this being dependent upon a variety of causes, an example of which is to be found in the deposit of earthy salts within the body with oncoming age; anatomical investigation and experiment show that one of the chief characteristics of old age is the deposit of earthy matter of a gelatinous and fibrinous character in the human system, carbonate and phosphate of lime, mixed with other salts of a calcareous nature being found to furnish the greater part of these earthy deposits. Man beginning in a gelatinous condition he ends in an osseous one. Of course these earthy deposits which affect all the organs naturally interfere with their functions; for whether of heart or arteries there can be but one result; which in all cases relates to the circulation of the blood, upon which nutrition depends, and without nutrition there is no repair of the various parts or organs of the body. It has been found by analysis that human blood contains compounds of lime, magnesia, etc., upon which the deposition depends at all ages of the individual; but it is only with oncoming age that they are deposited. In early life they are thrown off, but age has not this power. To my mind this being an apt illustration of causes acting from within the body and disease producing these being for the most part structural and relating (as in the case before us) to an altered blood supply to a part or organ and therefore directly to nutrition; being infrequent in occurrence and largely the result of age. Youth, especially those healthy born, being

almost entirely exempt from death-dealing causes acting from within the body, the results of injury, etc., of course, excluded. So that it must be at once apparent that were these the only causes of disease, man would largely round out a threescore and ten existence and die of old age, but how far from realizing any such result, as is well known a very large percentage of deaths occur among infants and children which so far reduces the average age of man as to bring it little above half his allotted time, about 32 to 35 years with, of course, fluctuations for different periods, so that the question naturally arises, Why is this? and the answer is at once plain, when we reply, Because of causes acting from without the body, which, exclusive of injury, direct or remote, relate to the great world of micro-organisms or other injurious extraneous substances introduced. Turning our attention to the natural world, we find that whether we examine animal or vegetable we behold that a great many more individuals are born into the world than can possibly survive, nature being extremely solicitous lest any of her forms perish that she preserves them either by throwing about them extra protection, or else leaves them to struggle for themselves, but gives birth to many more than can possibly survive; but if we look deeper we can plainly observe that in all cases the former, or extra, protection, is but a gift or reward which leaves all early cases of the same form to come under the rule and arrange themselves under Class 2, there being no exception to the rule that every organic being naturally increases at so high a rate that if not destroyed all available space would soon be covered by the progeny of a single pair. Linnaeus calculated that if an annual plant produced but two seeds and their seedlings next year produced two and so on, in twenty years there would be a million plants of this one kind, but this, as we all know, is a greatly underestimated calculation, for no plant is so unproductive as to give but two seeds. Mr. Hassal, for instance, counted the pollen grains of a dandelion flower and found them to be 243,600, while a peony contained the astonishing number of 3,654,000 grains, while on the other hand an editor of one of our botanical magazines estimated the ovules in a certain flower and found that each ovule was ensured impregnation by the production of 7,000 pollen grains. If any one will carefully examine a human placenta he will find it made up of a number of smaller ones coalesced and contained within one membrane. It was once my privilege to have delivered a woman in whom the placental attachment did not exceed the surface of a silver dollar, the remainder being covered with the amnion and therefore denied union by the villi of the corion, and yet the child was as any other strong and healthy born. Now these facts prove conclusively that nature is extremely lavish and always careful lest any form perish. Seeing then that not only does she supply the natural elements for great and continuous fertility but likewise as a result of the same many more forms both animal and vegetable are born into the world than can possibly survive; it becomes but natural to inquire why one form does not overrun the earth and deny existence to others, which we know in nature never occurs. In a state of nature almost every full grown plant annually produces seed, and among animals there are very few that do not annually pair,

hence we may confidently assert that all plants and animals are tending to increase at a ratio that would soon overrun every available foot of land surface and stock every station in which they could exist, and that this geometrical tendency to increase must be checked by some form of destruction at some period of life, this destruction ever maintaining that beautiful balance so freely observed throughout nature. In what do these checks so universally present consist? Look at one of the most vigorous species; by as much as it swarms in numbers by so much will it tend to increase still farther. Now the nature of the check to the inordinate increase of species is, in the first place, a large destruction of seeds, and in the second place, a continuous struggle with other forms for the same ground which is at all times overstocked, while among animals it is largely related either to the obtaining of food, or the serving as the same, but we are extremely ignorant on this subject and in most instances cannot ascribe the whole cause which relates and inter-relates to all forms of life and its harmonious balance. But it is not here that we are very much exercised in the present essay, all we wish to accomplish on this point being to carefully note that these facts belong to organic forms in a natural or unmolested state, I mean unmolested by man, checks to inordinate increase in a state of nature relating as we have above seen to causes in which a life struggle with other forms is ever prominent; together with the food supply of each species which seems to act as pursuer and pursued. But with the advent of domestication the picture changes; with oncoming civilization these undeniable natural facts have become modified and changed. The tomato no longer spreads solely over the small island of San Domingo, its native home, its seeds disseminated by birds or what not. The potato was a native of Chile and Peru in its primitive state and was carried to Spain from the mountains near Quito early in the Sixteenth Century; thence to Italy and Austria, to England in 1586, becoming a field crop in Ireland and Scotland about 1732. Indigenous to Chile and Peru it grew wild and contended with other and numerous vegetable forms for supremacy, but for several hundred years the potato has been protected by the hand of man. Domesticated, in short. Now what has been said of the tomato and of the potato can likewise be said of all our garden vegetables and not only with our vegetables, but likewise with our cereals, wheat, etc., which at one time grew wild supposedly as a grass on the banks of the Nile in Egypt. This is also true of trees; all domesticated kinds, as the peach, plum, pear, apple, etc., having been evolved and domesticated from a wild state, the same being true of all our domestic animals, man being their protector and preserver. Now it is well known that man in a state of nature, the wild tribes of a country, partook largely of the same struggle for food and space as did the forms of life, both animal and vegetable, with which they were surrounded; consequently their greatest mortality was evident as the results of continual warfare, tribe upon tribe, or from the dire effects of scarcity of food which so often occurred among them owing to the uncertainty of the chase and also to the long and severe winters in many localities, many perishing thereby. These causes when coupled with affections resultant on exposure and

largely inflammatory, which from the mode of life of primeval man were many, together with infanticide, and sometimes cannibalism, in times of famine which occurred as with the Terra del Fugians by the killing and devouring of the old women, seems to have formed about all we know of causes relative to savage mortality; indeed these being quite sufficient to cause that necessary check to increase found everywhere. Now it must be entirely evident that as man became civilized and extended to certain vegetable forms by reason of their value as a food unequal protection when matched with other vegetable growths, that he affected or began to effect the economy of nature in a two-fold way. Firstly, he extended to his favorite vegetable forms such protection which would give them an undue prominence, or position, over their immediate competitors. Secondly, he at the same time gave to their competitors an unequal or unnatural check, this being entirely necessary, of course, to give precedence to his favorite forms, but at the same time giving rise to an unbalancing of that great and beautiful equipoise of nature, but nature is ever resourceful and quickly came to the rescue by establishing such laws of compensation for her disturbed economy as entirely to compensate her loss, these causes being various. However we are loathe to believe that she resulted to strenuous measures at once because the necessity was not urgent, for civilization and domestication, which in the present meaning relates to protection, has been a matter of slow growth, which in its infancy was confined to spots widely separated, but with the passing of time and the advance of civilization over a country and over the earth, little by little she was compelled to resort to measures entirely her own and necessary for the maintenance of her supremacy. If we should attempt to prove in this essay that in all cases where disease arises from causes from without the body, it is parasitic, I fear we should perhaps overstep the limits of the same and thereby lessen the effect of other, and more important facts; but bold as it may seem at first sight, doubtful as it may appear, there is much evidence in its favor. Thus it would seem that nature did not change her plan in the oncoming necessity for self-protection, but merely enlarged the scope or meaning of the same, for, as we found with animals in a state of nature they perish either from lack of food supply, or as serving as a food supply to other forms, thus being each in its turn parasitic; for no form can live at the expense of another without being so, and all organic forms so live. It would therefore appear that nature merely extended her operations as the necessity arose, by the evolution of hitherto unknown forms of life, destructive to domesticated forms; this seeming doubly so as we have no history of any form being devastated by disease in its purely aboriginal form, that is, until interfered with or molested by man either directly or indirectly, at that time, of course, man being in a state of barbarism, but yet far enough advanced to extend to nature as it were, a selective hand, however rude. Let me repeat, therefore, that in a purely aboriginal state we have no evidence that disease in any form was added to those causes already given and serving as checks to each organic form. This does not imply that savages are exempt from disease, neither that wild forms of vegetable life are free. Indeed it is

astonishing how rapidly disease spreads when once introduced into, or among wild forms of life in either kingdom, but any examination of this kind and any statistics gleaned therefrom must of necessity have been obtained by contact with man in a higher state of civilization and without this very contact we are absolutely devoid of the same. We do not claim that disease in a purely aboriginal country may not have acted as a check to increase, before even aboriginal man extended to nature a selective hand, all we maintain being that we have no evidence of its having so done, much less proof of the same, and, as can easily be discerned by any one making the experiment, was not necessary as a check because of other and entirely efficient causes. That disease is geometrically proportionate to the state of civilization and the newness or wildness of a country, there can be but little doubt, and much evidence might be given thereon; take for example diseases of the vineyard and known to all growers of the grape as Downy Mildew, Powdery Mildew, and black rot, together with the root louse. Now, more than one-half the grapes of the United States are grown on the Pacific coast and most of the varieties grown in this region are derived from a single species of grape (the *vitis vinifera*) which is believed to be a native of Asia but which has been so long and so extensively cultivated throughout Europe that it has become widely known as the European vine. Now the varieties in the eastern United States have, with hardly an exception, originated from the native North American species. Now mark! the root louse upon the native North American vine does little or no damage, but becomes a deadly parasite when transplanted to the roots of the European species. The same may be said of powdery mildew and downy mildew, which do little damage to our native vines, *but which have swept over vineyards of the European vine like wildfire*. Now this single instance, of which many might be given, not only proves the force of our previous remarks, but likewise shows that inevitable law of evolution which proves that the higher the form, the less stable it becomes. If I have succeeded in making plain to the reader that disease, of no matter what character, and no matter what organic form attacked, be it vegetable or animal, has been, and is, the result of undue favor and disproportionate protection afforded the form (which in nature is never gained but ever so slowly, and always by natural means), whereby a large and disproportionate number of forms are brought to life and protected, thus unbalancing the economy of nature and calling for some form of compensatory regulation, I shall have succeeded as I had hoped. It is within the memory of every man of 40 or 50 years of age how the Colorado beetle or potato bug appeared in the East, and I need not dwell on the appearance of other and various forms of insect life which have proven themselves destructive to one or another of our vegetable productions, and I ask the question, Where did they come from? Surely, in the economy of nature, somewhere. Now, it is my firm conviction that the more artificial the life of man becomes, that is, the more man surrounds himself with those things and operations whereby nature is disturbed in her quiet workings, the greater will be the number, if not, perhaps the more severe the form of disease processes whereby she guards herself from

being overthrown. Man is but a dreamer when it comes to at all accurately estimating or appreciating the extreme delicacy of adjustment whereby nature holds together in one grand whole the various and everywhere varying forms of life to which she gives birth. It is a well-known fact that one of her immutable laws is progress, this being at all times manifest by the disappearance of old and wornout forms of life, and the replacement by other and improved forms. Now in the operation of this law it is likewise apparent that whole species may perish, that death may overtake the whole of a certain animal or plant, but one need but speak of the operation of any such law when immediately the question arises, How is this loss compensated? Seeing that nature is so finely balanced, herein comes the necessity for variation, for variation means change, and variation with change, as applied to nature, means improvement in the long run, but it means more than this: for, as we have beheld the entire disappearance of organic forms at one end, so we observe the appearance of new and hitherto unknown forms, this being even true of microorganisms whereby disease produced by them varies, and especially so of insects and other disease producing organisms, the old becoming modified, and new forms of life evolved. On a certain acre of ground a farmer wills to raise a certain cereal or vegetable; he prepares the soil, limes and manures it, and extends to it generally such various measures be they of addition or subtraction whereby he hopes to best fulfil his plan; he harvests his crop and it is bountiful, the next season he plants again of the same, and receives a large reward, the third year he sows but he notices that although he has fulfilled the same necessary precautions as before and even with more care, yet his crop is failing; he examines his seed and to all appearances it is as before, but it is only to the unaided eye that it so appears, for the microscope reveals that an egg has been deposited within the very heart of the grain or other vegetable; he has never heard of it and his neighbor has never heard of it, but it is there. Just such things have occurred thousands of times, perhaps in other localities, but only now having extended to his. On that same acre of ground in its wild or aboriginal and unbroken state perhaps grew 100 species and varieties of plants instead of one as now, each struggling for supremacy; enough seed perhaps from that 100 species, and varieties, to plant 1,000 such acres, so we behold the early destruction of forms. Then a race began and many perished of those that had taken root, but only the strongest survived; but when man interfered and extended his protection to one plant only, he saved all the seed and planted promiscuously therefrom, and gradually it became diseased.

Now, the more the economy of nature is disturbed in a protective or selective way, the greater will be the number of disease processes compensatory; this is certainly witnessed in our yearly increase of hitherto unknown parasitism and is likewise beheld where successive crops of a like kind are raised on the same ground, rotation of crops being in most instances, a preventative. Now the exact relation of cause and effect, whereby are given birth hitherto unknown forms of life the same being parasitic (so much so that nowadays and owing to the widespread unbalancing of nature man has come to consider preven-

tive measures as absolutely necessary to success), is not positively known, positive as is our belief that in all cases these same things act as necessary checks to the inordinate increase of a species. One thing is, however, sure, and that is that the greater the complexity of organization, the less stable becomes the organism, and this complexity concentration affords, so that, whether by the continuous planting of crops on the same soil, some element necessary to its growth and healthful organization is continuously abstracted and thereby the organism weakened, or whether the condition is analogous to close inbreeding in the animal kingdom whereby stability of organization is lost, is not known; suffice it to say, however, that by reason of the same and arguing along the line of human susceptibility to disease, parasitic organisms are evolved, whose life-work is to destroy these same weakened forms, it being in no wise improbable that this same weakening is brought about as a direct result of the application of both causes above enumerated. Certain it is that whatever of weakening is found in organisms is compensatory in all cases for something gained, the same being for the time being advantageous, therefore, whatever predominance is gained one form over the other (except that slowly gained, and by means of natural selection), by this same weakening opens the door not only to lessened fertility, but likewise to a greatly lessened chance of growth in the struggle for existence and, consequently speedy extermination. Herein then comes disease. It is well known that vegetable matter is a very prolific source of putrefactive germs, so much so, indeed, that a tuft of hay is frequently used in experimentation, or air, dust laden, from the loft. Now, while it needs no comment at all to prove that the organisms that give rise to putrefaction are in and about the hay, yet a curious fact is that practically so far as the hay is concerned they are harmless, therefore it becomes but natural to inquire what is the meaning of their presence in and about the hay, seeing that they do not produce putrefaction in it, but are capable of producing it in any organic solution, be it vegetable or animal. If now we should follow in sequence the disposal of grasses left to a state of nature we immediately see that it is here and not in the artificial condition of hay that the bacteria are employed, hay being nothing more than desiccated grass in which because of the absence of moisture these same organisms cannot work, while in a natural state they are employed in the presence of sufficient moisture (the same being properly combined), in the natural destruction of the same. The splitting up of the complex molecules of the hay into those of more simple combinations and in this way redistributing to elementary bodies composing it to be again appropriated by other organisms. Now, it is plain to see that left to work out this process in a state of nature vegetable life offers to the atmosphere very little or no dust laden with organisms. It is only when they become dry grass or dry vegetable matter that they become detached and entering the atmosphere become widely diffused. On the supposition of this hypothesis germs are always, and only, the product of decaying organic matter, and this fact seems proven. Following this, and as we have in the case of the hay which left to nature, and in a natural state, and in no way interfered with by the hand of man utilizes its attendant

germs by breaking up into suitable material for reabsorption, gases or what not, and in the presence of sufficient moisture. Thus, in a twofold manner or way being protective to man: firstly, by being utilized in the economy of nature by serving as disintegrators of matter and preparing it for reabsorption and an endless cycle, and, secondly, by being unable to work except in the presence of sufficient moisture which at the same time prevents their being taken up by the dust of the atmosphere. But do all germs find so suitable employment? and are they pathogenic or non-pathogenic organisms out of place? Arguing along the line of inquiry here propounded, let us see in how far our theory, which presupposes that all germs are but organisms out of place, which employed in a state of nature in all cases do her bidding, which primarily was in all cases beneficial to all other forms of life, let us see in how far our proposition is tenable. It is interesting in the first place to note that in the wide and varied process of putrefaction and which results as the life-work of whole groups of different varieties of bacteria, albuminous bodies form a large part. Now the action of these bacteria on such substances is analogous to what takes place when albumens are subjected to ordinary gastric and intestinal digestion. In these circumstances, therefore, the production of albumens, peptones, etc., similar to those of ordinary digestion, can be recognized in putrefying solutions, and what is more, some pathogenic forms have even been found to have a similar digestive capacity. Here, then, we have a strict analogy between an organic vegetable substance, as grass, which by reason of the work of putrefactive organisms is broken up into simpler compounds, suitable for reabsorption as food to next year's crop of grass, or other vegetable production, while on the other side, we have albuminous substances, as meat, being split up in the stomach of man in precisely the same manner and which immediately serve as his food, and these two processes serving as it were one end, an identity of cause with a similarity of result startling as it is true. But this is not all, for we find upon examination, that some pathogenic germs engage in the same process, and seeming to prove our assertion that even they are but misplaced benefactors.

In the second place we have distribution. Now on the principle laid down germs being the direct outcome of decaying organic matter, and disease being but a compensatory check to increase of population, vegetable or animal must necessarily in no small measure govern increase and action, it following that the greater the population the higher the natural death rate. If we attend to the geographical distribution of germ life we find that great differences exist even within very limited localities, for instance, in certain parts of London it being possible to pour sterilized fluid from one flask to another with the result that but a small percentage will become turbid, while in other parts every tube will be infected; and the same may be said of any other large city. Differences likewise being noticed for different times and places through the whole of a country, or district. However, when we come to calculate these matters, and especially as they relate to cities, it can in nearly every case be ascribed to ventilation, or air motion, it being a well-known fact that an optically dust-free

air is likewise a germless one. But it is as we journey mountainward or seaward that the experiment beautifully sustains itself, the tops of mountains above the line of perpetual snow, and the ocean's expanse, ship free, being germless. This fact, however, not being in itself a guarantee against infection, inasmuch as the germ necessary to infection, the peculiar organism necessary to the evolution of the same, may be the inhabitant of one's own body. In conclusion, therefore, and seeing as in the undeniable facts before us that distribution follows closely in the train of organic proportion, that an intimacy of relationship is maintained between the same, that seeming disproportionate distribution is largely the result of atmospheric change, that centres of population for other organic forms are likewise centres of population for germs, that proceeding mountainward as vegetation lessens, and as animal life lessens, so do germs, we are forced to the conclusion that germs not only possess a life history of their own, but likewise that the same is akin to all other life, and lastly, that they relate to the economy of nature as benefactors; preparing for elementary redistribution that wealth of organic life which is annually destroyed, and that disease is in all cases but the presence of these normal little workers out of place.

THE VALUE OF THE MICROSCOPE IN DIAGNOSING LESIONS OF THE KIDNEY.

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PART II.

With this basis for my ideas of treatment I will describe a typical case of kidney involvement. This patient caught cold two weeks before being seen; the next morning he awoke with headache, puffiness of the face and the eyelids; since then he has been unable to work, complaining of nausea; and he noticed that his urine looked "like red wine," but he has noticed a change in the amount passed. On the third day his abdomen, legs, and ankles were somewhat swollen, with some vomiting, and latterly pain in the muscles of the right leg, but none in the back. There was no disturbance of vision. With such a history I examined the urine, finding it smoky, acid, specific gravity 1010, albumin rather more than one-eighth per cent.; sediment considerable, brownish in color with much blood and pus, many renal cells, some of which are brown granular and fatty; casts hyaline, fine, and brown granular in some epithelial casts with blood adherent. He had but very slight edema when seen; the cardiac apex was in the fifth space just inside the mammillary line, and the area of cardiac dulness was moderately enlarged. At the apex and into the axilla, and heard distinctly over the whole cardiac area, a loud systolic souffle, replacing the first sound, is heard, with accentuation of the second pulmonic sound. He passed thirty ounces of urine in the first eighteen hours after seen; during the early part of the night he was restless and complained of severe headache, and next morning he was given a dose of salts to move his bowels but vomited them; then he complained of some headache; at ten in the morning he complained of inability to see distinctly, and at eleven he had a convulsion, with pupils moderately contracted, some cyanosis, frothing at the mouth, and general clonic muscular spasms lasting about three minutes, with a copious involuntary discharge of urine, wetting his bedclothes. Between one and three he had nine convulsions lasting from one minute to three minutes, each less in severity; between the

convulsions being either comatose or semi-comatose.

Here is an acute nephritis, the diagnosis perfectly clear, and the only question being whether it is an acute nephritis or an acute exacerbation of a chronic affair. In determining that question take into consideration the previous history of the patient so far as it can be obtained, his physical condition in general, the condition of his heart, especially the left ventricle, the tension of his arteries, and the examination of his urine. There is nothing in the clinical history to indicate that this was an exacerbation of a chronic affection, for, apparently, the condition dated from two or three weeks before from exposure. The evidence from the heart is equivocal, because we find the evidence of a valvular lesion, there being a certain amount of enlargement with a systolic souffle at the apex transmitted into the axilla, and an accentuated pulmonic second sound. This mitral lesion being, in all probability, not referable to the renal trouble, although in an older person, with a history of previous attacks, or the suggestion of more or less long-standing trouble in the kidney, the cardiac condition might be attributed to the renal. Here it is probably independent; the patient once had an endocarditis which has run its course leaving a regurgitation through the mitral orifice.

The urine is more indicative of an acute exacerbation of a chronic affection than of an entirely fresh attack, for the low specific gravity of the urine, the relatively small amount of albumin it contains, and its quantity are significant. The convulsive attacks, however, are clearly uremic in origin. The flow of urine was apparently sufficient—thirty ounces in the first eighteen hours, with seven grains of urea to the ounce, over two hundred grains of urea in that eighteen hours. Here were premonitory symptoms, although they were short, and not very well defined; some headache the night before; next morning some vomiting, but it followed the indigestion of the concentrated salt solution, which sometimes causes vomiting itself, but there was a little headache and indistinct vision, and very suddenly came these fully developed convulsions, with coma. Those muscular twitchings are premonitory symptoms of uremia in many cases, and will suggest the danger of convulsions. The indistinct vision, and subsequent loss of sight was uremic amaurosis; it is entirely unassociated with any retinal changes, and the results of ophthalmoscopic examination are negative; often the response of the pupil to light is maintained, which shows that the trouble must be above the corpora quadrigemina, referable to the ophthalmic centres in the occipital lobes; the effect of the uremic poison upon the higher nervous centres of vision, the vision being restored as the toxic agent ceases to manifest its effects. Here the pupils were moderately contracted during the time of the convulsions and the coma, not dilated. His temperature was normal when seen. Here is a clear-cut case of uremic convulsions and coma, but there are cases in which the diagnosis is extremely difficult, and it may be impossible for a time to determine their exact nature. Let us take the uremic convulsions; convulsions of uremia are spoken of as "epileptiform," being similar to those of true epilepsy, but are of different origin; and are often hard to diagnose from epilepsy and hysteria. The epileptic paroxysm seldom has much premonition, for while sometimes it comes on preceded by an aura, starting from one point or from another, it is generally of brief duration, only a matter of a few seconds or minutes, and the epileptic

convulsion is frequently single and followed by stupor and there is usually complete unconsciousness, but the epileptic paroxysms may follow one another in rapid succession the patient not emerging into clear consciousness. With no history and the patient seen for the first time in the convulsions, unless there is edema, and unless a sample of urine can be obtained, it may be impossible to make a diagnosis, especially if one epileptic convulsion succeeds another, if you have a condition more or less well marked of the status epilepticus.

To diagnose from hysterical convulsions remember that in a great majority of cases the female sex is exposed to these and there is no edema and no elevation of temperature. The pupil generally responds to light, and during the convulsion the movements are wild, for there is apt to be crying out, not simply before the convulsion, as in the case of the true epileptic paroxysm, and the tongue is seldom bitten in the hysterical convulsion, and the patient throws herself about a great deal, cries out, often attempting to bite herself or bystanders. An examination of the urine will settle the question. In the hysterical convulsion the sphincters are not relaxed, no involuntary passage of urine or of feces as in an epileptic or a true epileptiform convulsion.

In alcoholic coma there is complete and absolute muscular relaxation, a flushed countenance, a strong smell of alcohol about the individual. But remember that a person suffering from coma of any other variety may have taken a drink of whiskey previously. In opium-poisoning there is the contracted pupil and the slow respiration, and in both opium and alcoholic coma there is no modification of temperature, while in sunstroke there is deep coma, flushed face, stertorous respiration, etc., but the temperature is the diagnosis, 105° , 106° , 108° , 112° F., but the diagnosis between uremic coma and apoplectic coma may be impossible, yet in young people the chances are against apoplexy, and the apoplectic attacks of the young are generally due to embolism, and the coma following them is generally not prolonged, while the apoplexy of older individuals is frequently from hemorrhage. In chronic Bright's disease, especially in the chronic forms, apoplexy not infrequently occurs, for degenerated arteries under high tension favor the occurrence of hemorrhage. Addison thought that in the character of the respiration a distinction could be made: that there is a higher pitched respiration in uremic coma than in the coma of apoplexy, but it is too fine a distinction for use. Meningitis, an inflammatory affection, will generally show a modification of temperature, with the previous history of severe pain in the head, photophobia, with the head retracted. In hysterical coma under strong stimulus the patient can be roused. Again, there is no loss of control over the sphincters in hysterical coma, and the reaction of the pupils is maintained; and if you can get the history, it is likely to be that of a neurotic individual, and there is likely to be some cause for the hysterical attack. For an examination of the urine it may be possible to get enough urine to test for albumin by wringing out the clothes of the patient. In accidents there is the history or the marks of the injury, such as the patient has fallen down and struck on his head. But in this case an acute process was going on in the kidneys before the appearance of the convulsions, which were preceded by fair signs of danger. This attack came on when the kidneys were apparently doing sufficient work—thirty ounces of urine containing seven grains of urea to the

ounce in the first eighteen hours under observation. Dropsy also was very slight, for an acute uremic attack is quite as likely to occur in the absence as in the presence of notable dropsy, the dropsical fluid containing urea in considerable amount and holding it outside of the circulation stored in the cellular tissue or in the internal cavities, whence it may exert little direct influence on the nervous centres. What is the explanation of a nerve-storm like this, where the excretion of urea appears to be sufficient? A great many mistakes have been made in the diagnosis of these conditions from the reliance on the fact that the flow of urine has been apparently sufficiently free; that therefore the attack could not be uremic; in these cases the flow of urine must have been deficient. People's ideas about the amount of water which they pass is rather vague; if they pass water frequently, they think they pass much; and if they pass it infrequently, they are apt to think they pass little. If a patient should secrete urea at the rate of four hundred grains a day but does excrete only three hundred and fifty, an accumulation of fifty grains per diem is going on, the effects of which accumulation must sooner or later appear. This indicates to you how important it is to note the specific gravity as well as the daily quantity of urine. The latter may be sufficient while the solid constituents are diminished, and in the event of either a small quantity or a low specific gravity a quantitative determination of urea is necessary.

The toxic agent in uremia has been much discussed, and a good deal of criticism has been made as to its being urea; for example Frerichs thought it was carbonate of ammonia, while experiments threw doubt on the theory that it was urea, because it has been found that large amounts of urea could be fed to animals without producing any trouble; but those animals had healthy kidneys, and as soon as liquids were withheld, the explosion came. Sufficient fluid to dissolve that urea kept the animals well, but limit the amount of fluid, and accumulation took place, but whether it is urea, or whether it is a combination of toxic agents, is uncertain. Landois applied the various urinary derivatives to the naked brains of animals, suggesting that kreatin and kreatinin play a rôle in producing convulsions.

This patient had a passage of six or eight ounces the day of the attack involuntarily. The next day fifteen ounces; the week later sixty-four ounces of urine passed; the specific gravity being 1009; rather low, but the quantity of urine is considerable. The temperature, pulse, and respiration are normal. The prognosis is good, as far as recovery from this particular attack; if his kidney trouble is acute, he is likely to recover entirely; if a chronic underlies the acute process, recovery will be only partial. With regard to the prognosis of uremic convulsions in general it is ordinarily better in an acute case in a young subject whose other organs and tissues are more likely to be in relatively good condition than in the case of a person past middle life with a chronic interstitial nephritis and wide-spread arterial lesions.

I gave him one-fourth grain of pilocarpine; then the hot-air bath was rigged up as rapidly as possible; that is, a cradle, and tin-funnel going under the bedclothes; or a stovepipe will do. Rig up a funnel somehow, get a lamp under it, and conduct hot-air under the bedclothes raised over a cradle, the clothes tucked in around the neck. In fifteen minutes the skin had not begun to act much, nor had the salivary glands started up, those

being the two organs especially affected to perspire freely. To move his bowels, I gave him one-thirtieth of a grain of elaterin under the skin, wishing to see whether that would work. That was given and repeated without effect. Then he was given two drops of croton oil on the tongue, and the same dose afterwards repeated. He was unconscious; the drugs were put in from some other avenue in the stomach. It was just put on the tongue, with subsequent free movements. During the last convulsions his pulse got rather feeble, perhaps partly under the influence of the prolonged hot-air, partly under the influence of the pilocarpine. So he was given some hypodermics of digitalis and brandy, and during the last convulsion a little ether.

If uremia be due to the accumulation of these toxic principles, of course the clear indication is to get rid of them, and under these circumstances—I am speaking of acute uremia, you are precluded giving things by the stomach; but there are two main avenues of vicarious elimination of urea—the skin and the intestinal tract; for the skin there is pilocarpine, which can be given hypodermically—one-fourth of a grain, and repeated in fifteen to twenty minutes if the effect of the first dose is not pronounced, remembering the danger of the effect of the drug on the heart. Watch the pulse; do not leave the patient. The action of the pilocarpine can be promoted by the use of the hot-air bath. If nothing of that kind is at hand, the hot wet pack. You can sponge the patient with hot water, and wrap him up further in blankets, and that will set the skin acting very freely in a short time. The best thing to give for the bowels is croton oil, for it produces watery discharges, draining serum into the intestinal tract, carrying with it urea. It can be given on the tongue, and will be absorbed from there, for although croton oil is an active vesicant when applied to the skin, it does not produce as much effect on the mucous membranes as on the skin, and it really makes very little difference if the patient does have a blister or two on his tongue in comparison with the possibility of saving life; for the convulsions themselves ether can be used; and the ether has its application perhaps especially if the pulse is weak, being a very good cardiac stimulant. Bleeding is a valuable remedy in some cases of acute uremia, attended by coma and convulsions; its application is much wider in those than in the chronic cases; in the chronic cases the patient can less well spare the loss of that amount of blood. If the case is chronic they have that much less to recover on; in drawing the blood a certain amount of urea goes at the same time in the blood.

I am now feeding this patient on milk and keeping his bowels open. He has had some jalap powder since he has been able to swallow, and cream of tartar water to drink; hunger is not to be indulged too quickly; I will keep him on exclusive milk diet, and keep him warm in bed for some days before adding to his diet. Under the microscope there were uric-acid crystals with beautiful epithelial casts.

Tuberculosis among negroes was discussed at a conference held under the auspices of the Charity Organization Society in New York City for the purpose of forming a committee of leading colored persons, chiefly physicians and clergy, to assist the general committee of the society in the prevention and treatment of this disease among negroes. The founding of a special sanatorium for consumptives among this race was urged.

REPRIEVE FOR THE GUILTY BACILLUS.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

CANNOT something less ambiguous, less speculative, but withal more tangible and effective be wrought out for the theoretic province of the "pathological" bacillus?—the ever-enduring bacteria that for thousands of years had perpetuated functional and relatively harmless existence, unrecognized and uncared for, but which by specialized dogma has now been sprung into enthusiastic, even strenuous vogue for learned exploit and medical dismay? For a trill of voicing years the discovered bacillus (the undiscovered may yet be propagated!) the discovered, by use of lenses that magnify and of eyes that weary and waver through strained pursuit, has been made the chosen "germinal" purveyor of all human infections. To bacilli have been assigned the peculiar function and prowess of inaugurating the serious diseases incident to human happening among the masses of mankind.

Every deviation of bacillian form is construed as signifying to what class the demonstration belongs and to identify the symptoms and name of the ailment, to decide how a diagnosis shall be determined, whether or not the hardships of quarantine and personal disinfections and burning of family goods to ashes shall be enforced, and a boycott of crowded shut-in households publicly announced by the yellow danger sign of pest plastered to the gates and door posts—with a yet possible patrolman in brass-buttoned uniform stationed across the way to officially emphasize the public awe! Such is the portentous impressment of the vigilant energy of salaried Boards of Health upon public sensitiveness and apprehension, because of the discoverable curve, or swell, or gaunt straight outline that supposedly defines the quality of contagion imputed by a few investigators to the bacillus family of human ferments to control the embarrassed situation.

What is overtaking the natural civil rights of the sick and their families and friends? How many of us have yet squarely stopped to bestow a little enlightened thought on the phenomenon? In the daze of fallacious revolution, among the million medical readers and thinkers of the world who perhaps pliantly glean the latest but to follow the latest, what is the exceptional number of those who have manfully paused to inquire where this imposing usurpation of the arena of practical medicine, with the machinery of State bills passed by legislative incompetents through political pull, is running to advantageously beyond the certainty of the salaried positions thereby vouchsafed? Who of us have profoundly thought it over? Has practical medicine suddenly concluded that it has no antebacterian past worth standing upon?—no healing crusades worth cherishing?—no experience of success to conjure by when cases of home diseases were relatively even less frequent than under the present restrictive régime, and when cures were equally numerous and satisfactory? Does it imply an absolute lack of analytic perception and courage in the general medical mind that no surprise is aroused or manifested at this unchallenged revolutionizing "Invisible Empire" of "germ" pathology, shaped to fit the curve or swell or link of microscopical blebs of bacillus ferment incident to waste secretions or exfoliations of disordered human tissues?

Since the vogue is on to arraign the bacillus as

germ-cause of every important disorder, the weapons of crusade are obtrusively pressed against the bacillus specially and radically. By what means? By isolation of the sick, by commitments to the impure, the drugged unsavory air of the Municipal pest house, by quarantine of residences and all found in them, by cremation of clothing and bedding, by saturations with deadly sulphur fumes, by bleach of blood-smiting chlorine and other gases, by forced detention of well persons for happening to be caught at suspected quarters, by rabid inoculations of the blood of patients and family friends with long-kept animal serums, commercially known as antitoxins to nullify the imputed but undemonstrated virulence of the innocent bacillus spawned into existence temporarily by preceding conditions,—all this rigid discommoding campaign ostensibly conducted to “stamp out” the particular disease supposedly induced by the bacillus amuck the malady. And, nevertheless, all the diseases incident to humanity continue to seasonably recur the same among the living with the usual cycles of moons and circumstance. Through courtesy of the chief medical inspector I obtained these relevant official statistics. In Philadelphia, for the six years immediately preceding the adoption of this rigid bacterian repression by the local Board of Health, the average deaths from diphtheria was four hundred and ninety annually. For the equivalent six years immediately following, when these germicidal tactics were pressed into official vogue, the deaths by diphtheria in Philadelphia numbered the significant average of one thousand and seventy annually. Such is an authentic demonstration of the futility of fighting at the helpless bacillus, instead of kindly recognizing in the environment of cases a more natural and effective cause of toxicity. Has diphtheria or any other common disease been “stamped out” by these germicidal crusades against bacilli? In striking deep at these invisible, intangible objectives with mighty weapons of supposed annihilation, is not vitality worsted and outdone, and the death rate accordingly swelled by martyrdom to “science” in nearly every modern expression of disease?

Shall we begin to think it over? Is it not time to start the wonder as to how all the world's population, from Adam to Solomon, from Solomon to Brigham Young, and thence to our apostles of the “pathologic” bacillus, ever managed to pull through the history of the parturient ages to such mighty magnitude, although in blissful ignorance of this infinitesimal “germ” bubble brought forth locally by the fermentative process of diseased tissues or organs?—this froth spore of variable form that has been exaltedly accounted the master dethroner of human life! How shall the colossal anomaly be reconciled even to itself?

Is it not our duty to examine the doctrines of what is advanced as new for acceptance? In any practical review of this tangle-tongue bacillus problem no display of erudition is called for. Release from the tyranny of a false idea is of more worth than brilliancy of origination. The plain warp and woof of textile construction constitute the woven web as it comes from the loom—the chemical relations of every fibre-cell “cuts no ice” with the practical weaver who delivers the right goods. According to scriptural record, in announcing the stupendous processes of Creation, the Lord resorted to no confusing overstrung

verbiage. “Let there be light.” “Let us make man.” Richer contrasts of phrases are presented by our scientists of spores! “Of the micro-organisms, as result of migration, the gonococcus produces more suffering than all other bacteria.” “The streptococcus are always present in the human mouth after the second day from birth.” Hark back: “The pathogenic streptococcus of erysipelas suggests the importance of surface cleansing by asepsis.” By this the erysipelas seems to have poisoned the “streptococci” that are harmless in the mouth from birth! There is little consistency in the flighty antics attributed to the four hundred and eighty-nine varieties of bacilli acknowledged by their studious prophets. Inconstancy is the natural synonym for bacterianism. Dr. Meade Bolton has intelligently affirmed: “One of the most striking features of bacteria is variability. The anthrax bacillus sometimes becomes so distorted in shape as to be unrecognizable under the microscope.” Great Indian is the bacillus in its gyrations between innocent sport and its murderous war dance! What underlying influence makes this significant difference? The character of the disease which it attends as a spontaneous product determines the degree of virulence in the active quality of the spore. We perceive how difficult it is to hold the bacillus to the shape supposedly indicative of the disease that the fluctuating bacillus must identify. Hence again its unreliability as a diagnoser.

Moreover, besides fascinating the human mind, bacteriology may capture the reason also. A few years ago I was an interested witness of a risky operation for strangulated hernia on a delicate lady patient of mine, removed for operation to a prominent Philadelphia hospital. In his abstraction, an aspiring young assistant of his chief leaned with forearm upon my feebly breathing friend who was then unconscious in anesthesia. To recall the young man, I gently touched his hand, remarking: “You are bearing weight upon the patient's chest.” With the thrust of resentment the assistant indignantly retorted: “Now, doctor, you have infected me! I've got to leave this patient till I go and re-disinfect myself!” My soul instantly swelled with contempt for such purblind bosh! “Great Scott of Covenanters!” I thought. “How many, even including capital operations, have I successfully performed in my country practice of earlier years, without the fuss and froth of such salty flummery!” The surgeon-in-chief quickly glanced at my face—perhaps he divined the trend of my silence—but possibly, also, by the doubled sanitation of the germicidal assistant, the operation eventually proved very satisfactory. The assistant, however, was not engaged at the cutting end of the work. He handled the benumbing anesthetic. He was none the less steeped with the Ritual of bacteriology. The compromised charge paid by my patient for the operation was two hundred and twenty-five dollars besides the hospital costs; and I have anon wondered if of this an extra fifty had been added to the bill because the caution of my finger upon the back of the assistant's hand had infected his mind. Selah!

Whenever we, as physicians, by passive consent, crown the bacillus as Emperor of all diseases, we should note also through what visionary straits his Majesty leads our idealism. It is frankly admitted that the variegated shapes of the inconstant bacillus have been ardently pursued by interested votaries.

Its fashions and habitats have been exhaustively studied. It has been ably and prodigiously written up by its expositors of physical science. But interpretations of science do not compass everything. Science has its myths. Elementary science was the prompter of Darius Green's flying machine. Elementary science is the prompter of all the modern "airship" contrivances that come to little or nought except the transient entertainment of their enterprise and poetic float in a patch of tranquil atmosphere;—but which can navigate no cross winds, outride no tests of gales and storm. It is proposed to arrest the bacillus by antitoxins,—a picturesque proposition that will best bear framing in gilt by side of the airship. Novels, novel schemes, are pretty inventions of genius. But who ever accomplishes any real conquest over the bacillus except the sanitarian who combats uncleanness, routs out disease-breeding conditions and rectifies breathing-air impurities by which sickness and its bacillus are generated together? Let conservative thought awhile make diagram of the lines of advance by which the knighted bacillus must wend its victorious way directly to the accessible spot, and at the yielding moment, to inaugurate its "pathological" pillage of imputed infection. Dare we not ask—is it the inherent prestige of the bacillus, or is it the degenerate soil of spoiled blood that decides the character and extent of physical casualties by the invasion? If the latter, instead of posing as cavalier, does not the obedient bacillus assume the rôle of valet? If we espy a tadpole in a puddle, do we blame the tadpole for making the mud hole wherein it was hatched? If we abolish the mud hole, are there any more tadpoles and mosquitoes produced or nested there?

Too many names of disease are tagged to the impotent shapes of the versatile bacillus. There is the "bacillus of anthrax": comparable to an invisible sightless globule of spontaneous fermentation originating from degenerated tissue. How could it discover its way beneath a man's clothing and possess enough energy to bore an entrance into the skin deep enough to there breed a flaming boil as big as a red pepper? Preposterous! But given a plot of degenerate blood, focusing toward a local spot of inflammation, for the exit of its pus element, may we not logically find the boil with its dead core attended by the bacillus of disintegration till the crater of the local tumefaction has been cleared of debris and the parts healed? Again, if such microscopic spore of ferment entered the blood current, that spore would be instantly neutralized out of existence unless the blood was in sufficient state of degeneration by which a boil might naturally be developed. Hence the bacillus is entitled to a reprieve as the alleged boil maker. Yet again, in the dicta of bacteriologists, who bend all reasoning to the curves and links of dogmatic theory, cerebro-spinal meningitis is solely produced by an invader-bacillus that somehow finds way to the tissues surrounding the medulla oblongata. How can the assigned bacillus beat a way to this work of devastation and stop just at the seat of life? Where does it come from? Is it inhaled with the breathing air? Trace the journey it must steer from a lung cell to the investing serous tissues that sheath the brain medulla without any disabling effect to itself or to other tissues through which it must float! What shrifts the human mind will stoop to for the sake of

bowing obedience to theory! By newspaper report, two lads recently died in Philadelphia of cerebro-spinal meningitis. They had been frequenting certain cold water public baths. By hobby theory nothing but a bacillus could be thought of as physical cause for these fatal attacks, and an official examination of the baths or swimming basins was ordered "to look for the germs." None were discovered—and official wisdom drew down her blinds! The daily and nightly home environment of these boys, the natural effects of repeated chill by excessively repeated cold plunges, were nonchalantly overlooked to seek the emptiness of the suspected bacillus.

By what caprice does a bacillus assume one form to colonize a diphtheroid throat?—another to burrow a typhoid bowel?—another to riddle the tuberculous lung?—another to flash a burning flame over erysipelatous skin or peritoneum? These are sane problems that merit better than any compromise solution by arbitrary rule of revolutionary proclamation. It is to be yet hoped that the day for independent thought need not be chained to any pathologic band-wagon because a new trumpeter is passing. If one mind has ability to think and frame postulates, why should not another? The Lord did not entrust all wisdom to one type of intellection. Is there a problem? If so, are not both sides of the problem worth examination? A capable physcain will study the natural defects of his patient's constitution and daily environment before he formulates his lines of treatment.

This cursory study would be rudely curtailed in scope if it failed to include passing reference to the latest specious hummer—the distinguished mosquito—which germists feign to elect as "envoy extraordinary" of the yellow fever bacillus in the 1905 New Orleans epidemic. Under all circumstances the mosquito tribe of insects is a teasing nuisance that deserves to be repressed in every available way for the comfort of mankind. But to obliterate the mosquito means the unthinkable obliteration of every green thing and stagnant pool and purling stream on earth. To the "stegomia" mosquito has been imputed the guilt of spreading yellow fever since the first gun of the Spanish-American war in Cuba. The mosquito has a digestive apparatus and belongs to a hungry horde seeking food. It thirsts for blood. With its long proboscis it can puncture the skin and suck blood from mankind. But if the mosquito can carry enough infection to destroy a man by what we recognize as yellow fever, the question occurs, inasmuch as the mosquito is incomparably small, why are not all of that breed in yellow fever districts extinct by self-collapse from autoinfection? By the mosquito theory of yellow fever infection we must consent to infer that instead of drawing blood from the skin of man, the suction process is in reality reversed, and the mosquito pumps into the man the contagion that breeds in him the yellow fever. This inference is too improbable for honest credence. How could any mosquito contain enough septivity to kill a man and be itself alive? Where would the mosquito obtain the virus on which the mosquito could thrive but by which the man would die? Where is the apparatus that holds the virus which the mosquito pumps into man? Does the mosquito, betimes whizzing about in the air, scatter from its wings the contagion that infects the people unto death? Preposterous! Any decent

atmosphere, a ray of clarifying sunlight, would annihilate any bacillus wafted about by a fly's wing—if that were all. But why the suspected mosquito? Has every case that has come down at New Orleans, or elsewhere, with yellow fever, a visible fester on the skin as evidence of a poisoned mosquito-bite? If a man's blood be defensively in good condition, a mosquito puncture for the extraction of a half drop of blood, drawn outward, would be and is of no moment. Then where does mosquito evidence win this deadly repute? Right here:—as the coincident concomitant of the neglected, fermenting, pest-laden, rotting filth that breeds disease naturally in unhealthy moist climate in hot weather. There we will find the blood-depraving element that brings it, the blood, to the febrile or burning-out culmination known long since as a malignant variation of acute remittent or bilious fever. The name "yellow" comes from the color assumed by the skin.

It is true the mosquito haunts moist places. Kill off the voracious insect by every means! Screen the water tanks, the cisterns, the cesspools to the heart's content. It is all the greater pity that people select to abide such unsanitary conditions. But the composite of neglect, of dirt and decay steamed by moisture and hot temperature, are the real breeders of the yellow plague—with the ubiquitous mosquito thrown in. Abolish the breeders—the unsanitary conditions—and the mosquito will prove itself acquitted. As to the habitats of yellow fever, where it appears, unusual states of fermentation and putrefaction, these evolved by exceptional propagation of high temperature, in conjunction with relatively stagnant states of atmosphere which thus accumulates poison to density degree, and therefore correspondingly vitiates the blood pabulum of the body,—these pestilential agencies outwing and outsting any mosquito in morbid prowess! A ripe and exceptionally learned student of visitations of yellow fever in this country, fifty years ago wrote: "These animal effluvia may be the substance of the contagious or epidemic germ; a manure to the fungus, a pabulum to the living animalcule, or a nidus to its ova." This discriminating writer, of Charleston, S. C., so long ago looked deeper into the yellow fever problem than reaches the proboscis of the mosquito. In modern parlance, he did not infer that the bacillus was the prime cause of yellow fever or of any fever, but that the conditions which develop a disease must father the bacteria that attend the disease. The disease needs no special carrier besides infected breathing-air through which the blood tide and all that it feeds suffer to pathologic crisis or to collapse.

The diplomacy of systematic cleaning-up, faithfully maintained; the righteous scrubbing and white-wash crusade vigilantly repeated; the relentless routing out of all rubbish and processional rot; the salubrious drainage or filling-up with decent earth of all stagnant pools and places; the ardent cremation of all degenerate or mouldering effects; besides seeking for well-aired sleeping rooms three stories above the reeking earth; possibly also the freezing-out grasp of Jack Frost;—these may be conjointly requisite to absolutely release a stricken people from the local scourge of yellow fever. Sanitation must guarantee more sensible and effective conquest than the elusive pursuit of the foraging mosquito. Clapnet in-

difference to the safety of sanitary virtues; repellent herding of uncleanly denizens and dogs; infective foulness of poultry-tenanted cellars; reeking expanses of slop-soaked surfaces and gutters; noisome back yards with manure collections and moulding rubbish; toxic coal oil fumes from cooking and lighting; perjured cistern water that has washed the filthy air and house roofs in falling; Caesar's ghost! of what puerile need to put it all up yet to the fugitive mosquito that shifts a share of existence amid the riot of such infective conditions!

There is a more rational philosophy, a more humane and logical and practically substantial pathologic advance, if we courageously reverse the prevalent bacillus hypothesis. We all doubtless believe in the bacillus of bacteriology. Although we did not know so much about the bacillus in earlier years, and accorded to it little attention, the bacillus "always has been, is now, and ever will be" an adjunct of natural adjustments in physical life. Instead of constructing our "ologies" of arresting disease on the inference that the bacillus, whatever its form, is the instigator of the diseases that it accompanies,—when we openly recognize the premise that disease in general is the abnormal physical state that results from unhealthy environment and other depressing conditions,—and that the "pathologic" bacillus is the natural fermentative product of the diseased state of the various parts wherein the bacillus is developed, each expression of disease and the class of tissues that are ailing giving form to the bacillus natural to each in the transpositions of non-vitalized matters,—we instantly have a tangible basis for remedial procedure without groping because, as facts demonstrate, when the disease is cured the bacilli have vanished. Therefore, instead of practicing costly severities on the constitution, and without punishing the impressible public with unnecessary alarms about "germs," our regenerating hygiene, our conservative antiseptics, our bracing reconstructive and tonic aids, our refreshing nutritives genially cooperate in restoring the blood tone and deranged organism to normal function and the patient is well. We will cease to fight at the bacillus—we will directly relieve the conditions that make the presence of the bacillus possible.

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Civil War Surgery.—Dr. Keen, in his recent book, "*Addresses and Other Papers*," writes entertainingly that the surgery of the civil war was very simple—cold water dressings, or simple cerate spread on lint made by patriotic women by scraping one side of old linen sheets or table cloths. To encourage suppuration—for pus at that time could be "laudable"—the ordinary flaxseed poultice was often used. An amputation stump was always dressed with a Maltese cross of lint spread with cerate. It is gratefully noted that ether and chloroform were then in use. There were then, however, no antiseptics, in the present-day acceptance of the term; wherefore erysipelas, pyæmia, and hospital gangrene were rife. Wounds of the abdomen, involving the viscera, were almost uniformly fatal. There were no hæmostatic forceps; and no retractors, by which a good view of the depth of a wound could be had; nor hypodermatic syringes (at least, not at the beginning of the war); nor aspirators; and finally no clinical thermometers, the fever having been estimated by touch.

SERUM TREATMENT OF DISEASE.

BY HENRY TAYLOR, M.D.

IN cases of pure streptococcal infection, the injection of antistreptococcic serum has been strikingly successful. The variability in the ordinary results from the use of this serum has been due to the selective activity displayed by the antitoxin of each variety of streptococcus, or to the serum being used too late or having lost its activity from age; probably more uniform results will be obtained from the present compound antistreptococcic serum than from the earlier forms, from the prompt injection of serum at the commencement instead of near the close of a severe infection, and from the use only of fresh serum. The administration of the serum for some days after the general symptoms have disappeared is necessary also in order to avoid a recrudescence, while the question of dosage must be decided by the nature of each case and the effect obtained by the injection, but it is important to know that large doses spread over several days have been used without bad effect. The most rational method is that of a large injection (from 20 to 25 c.c.) on the first occasion followed by smaller doses as needed. Yet it is difficult to estimate accurately the general therapeutic value of the serum. For example, Bonne reports his own experience from its use. He believes it saved his life, while Ramsay in the case of a young girl with pyemia, abscesses in joints and miliary abscesses relates that in five weeks the patient was almost cured, 205 c.c. being injected. When the injections were stopped she grew worse; and yet many other observers feel that the serum did not have much to do with such recoveries, but that the patients would have recovered without its use. In individual cases the use of the serum would seem to have helped definitely; but these are more than counterbalanced by cases in which no effect whatever is to be attributed to the serum. The irregularity of course in puerperal fever, the difficulty of distinguishing the results of other treatment from those of serum, cannot be too clearly remembered. In a proportion of cases, however, there does appear, apparently as a definite result, a marked improvement in the subjective condition. This is by no means constant, and apparently bears little, if any, relation to the general course of the infection; but it seems to be definite and must have some meaning. There seems to be no good reason against its use; urticaria, erythema, joint-pains, etc., following its use are of not uncommon occurrence, but of no great moment. Abscesses at the point of injection, sometimes continuing streptococci, are not rare, and suggest care in using a bacteriologically tested serum. Probably in many cases the dosage has been too small; and remember the potency of different makes of serum varies, and they lose markedly by keeping. The problem is not to protect against an infection, but to cope with an infection in full swing, and that with a serum of doubtful efficacy; the needed dose must probably be large if anything is to be done. The limit of dosage must vary, but the untoward effects noted above are not frequent, and numbers of cases have borne 25 c.c. doses. Serum treatment should be used as an adjunct only, and never to supplant or modify other treatment. Pratt states that the result in puerperal septicemia treated with antistreptococcic serum have been as follows: Cases, 118; recoveries, 76; deaths, 41; percentage of recoveries, 64.4; percentage of deaths, 35.5; of course, the cases of most value are those in which streptococci were demonstrated in the uterine discharge. In Europe these views are held:

Dandois said: "Those results alone are considered when recovery takes place after injections of the serum; but the cases are not considered in which the effects are not notable or in which death occurs; and in cases in which the patient recovers, it is not considered whether or not he would have recovered of himself if left without treatment." Willems said: "My experience is insufficient to judge from; but in cases of grave infection I would employ the injections and make a bacteriologic examination later, stopping the use of the serum if the case did not show the streptococcus. If they were found, I would continue the injections as the most reliable means we now have of combating their effects." Debersaques expressed the following opinion: "I have obtained marked results by injecting about the crissipalatus area. In cases of general infection the serum is an adjuvant, but surgical treatment loses none of its indications nevertheless." Lambotte reported 10 cases, and said: "Although bacteriologic examination was wanting in many of my cases, the results seem to point to the conclusion that the serum is more efficacious the earlier it is applied. It should, I believe, be used as a preventative where infection after operation is suspected." Baum, from his own experience and a study of the literature bearing on the subject, concludes that in cases of pure streptococcus-infection the serum undoubtedly exercises a favorable influence on the course of the disease. In cases of mixed infection the influence of the serum has been demonstrated, but further trial of the remedy as an adjunct to other treatment is desirable. Considering the grave character of complications of nonstreptococcal origin, all indicated therapeutic measures should be employed in addition to the serum. It may be assumed that the serum exerts a direct bactericidal action upon the streptococci, and not merely a stimulating influence on phagocytosis. The initial dose should be 20 c.c. to be followed by 10 or 15 c.c. every twenty-four hours, according to the indications. In America we are more conservative, for example: At a recent meeting of the American Gynecological Society, a committee appointed for the purpose of investigating the claims of the serum-treatment of sepsis, reported, after an exhaustive study of the recorded cases, that the serum-treatment of puerperal sepsis is not to be relied upon, and needs further laboratory investigation before it may be recommended for general use.

Will the day ever come when the serum-treatment of syphilis will be a success? That day will certainly deserve a white mark along with the discovery of the prevention of the small pox, for syphilis was formerly known as the big or "great pox." Many observers are working in this field, such as Risso, Feulard, Tommasoli, Kollman, Mazzam and Cipollina; one of the latest and most promising reports was made recently by the two Italian observers, Risso and Cipollina. They administered their specific immune serum, obtained by inoculating dogs with blood from syphilitics, not merely the serum. Sixteen patients have been treated so far with this curative serum; fourteen were in the secondary stage and other specific treatment had not yet been commenced. Two were in the tertiary stage. As a result nine of the fourteen in the secondary stage were promptly cured; two left before the course was completed and three are still under treatment. One of the two patients in the tertiary stage was completely cured, and the other is still under treatment, but all the patients displayed marked improvement. According to these observers the papular and the macular manifestations vanished more

rapidly than under ordinary mercurial treatment; and even the lesions on the mucous membrane healed without the necessity for local treatment. In only two cases a tendency to recurrence was noted, but it was soon dispelled by return to the use of the serum. Especially interesting was the subsidence of a gummy tumor in the nose under the influence of a dozen injections of the serum. The four patients still under treatment already display great improvement. These writers are convinced that the serum has an unmistakable active action on syphilis; it is probably specific, but may act merely by stimulating the natural defenses of the organism. According to their results it is not impossible to obtain an effectual serum from animals refractory to syphilis; and it is possible that animals can be syphilized after all, although the manifestations may not be like those of human syphilis. The first injections were made in June, 1904, the inoculation of the dogs was commenced in May. Their method of production of this serum was as follows: blood from syphilitics in the secondary stage, not yet subjected to specific treatment, was injected under the skin and into the peritoneum of the animals; the injections were repeated three or four times with an interval of five or six days; a week after the last injection their blood was drawn for the therapeutic injections. The contagiousness of the blood of syphilitics in the secondary stage shows that it must contain more or less of the specific virus; and the animals were inoculated with some of the formed elements of the blood in a hemolytic solution along with the serum, hoping that they would increase the action of the serum. This expectation was sustained by the fact that when too large a proportion of the dissolved corpuscles was added to the fluid injected, symptoms of irritation appeared; from two to five c.c. of the animal serum was injected into a muscle every day, or at longer intervals. A glycerin-aqueous extract of the spleen and liver from animals that had been repeatedly inoculated with the blood from syphilitics was also tried. Original observers are always so optimistic, it is well to wait before accepting these conclusions.

Antityphoid inoculation has been fully tried by Professor Wright, of Netley, England, but the subject has attracted absolutely no attention in this country. These inoculations were tried especially in the Boer War. In the case of the troops, 10,529 were not inoculated, 1,489 cases of typhoid occurred or one case in seven; while the proportion in which deaths stood to total number of men in group was one to thirty-two. In the uninoculated men, 1,705 in number were thirty-five cases of typhoid or one in forty-eight men as against one in seven; while the proportion in which deaths stood to total number of men in group was one to 213. Yet the mortality among the patients was about the same. These results on paper seem most brilliant. The serum is intended for use where people have been exposed to infection, or before they are, and does not seem to have any power over the disease once it gets a start.

Brilliant results are reported from India on the use of Calmette's anti-venomous serum. Fault has been found with Calmette's method of estimating the value of the serum on account of there being no direct estimation of the amount of venom which a given quantity of serum will neutralize, inasmuch as no account is taken of the fact that the untreated animal is capable of surviving the injection of a certain quantity of venom. Semple and Lamb, however, believe that such exceptions are unwarranted; thus if the toxin have a minimum fatal dose of 0.35, 0.3 not being fatal, and 1 c.c. of a serum protects

against 10 minimum fatal doses or 3.5, the 1 c.c. is capable of neutralizing $3.5 - 0.3 = 3.2$. Calmette's claim is 20,000 immunity units, according to his method of enumeration, in 10 c.c. 1 c.c. injected intravenously into a two-kilogramme rabbit five minutes before the venom, is able to counteract a dose which would kill a control rabbit in from fifteen to twenty minutes. Semple and Lamb found the lethal dose of Calmette's venom to be 0.00035 gr. per kilogramme body weight, 0.00025 gr. per kilogramme being the maximum non-lethal dose; the dose which kills a two-kilogramme rabbit in twenty minutes is equal to three lethal doses, viz., 0.002 gr. They endeavor to ascertain what was the neutralizing power of the serum when injected five minutes before the venom. The results obtained by their experimentation, exactly confirmed Calmette's statements; and in trying to reconcile their results with those of Martin and Cherry, Semple and Lamb found that the venom at their command was only one-tenth as strong as that used by those observers. By a carefully-made estimation of the quantity of venom injected during snake-bite (0.019 gr.) and calculating that 1 c.c. of the serum neutralizes 0.001 gr., it was calculated that for a man of 120 lbs. the curative dose of anti-venomous serum should be between 15 and 20 c.c. In all points, Calmette was confirmed in his conclusions.

* From the *Indian Medical Journal* comes encouraging reports of the use of "leprolin" in leprosy. About 120 cases have been treated in Burmah and fourteen so far have been discharged as cured. Rost has treated fifty-six cases which had improved so much that they are "almost cured." Improvement is first noted in a return of perspiration in a part previously dry, followed by a return of sensation, which may be only transient or it may be permanent; but ultimately it always returns on continuing the treatment. There is at the same time a gain of strength and loosening of the contractures of the fingers and toes; cases having been recorded with very severe deformity and loss of power through contraction which have completely regained their power and lost the deformity. Ulceration may give way to healing at once; but in some cases thickened, hard epidermis has to be cut away before the ulcer heals, while nodules are usually slow to disappear. The color of the skin returns slowly, and the pains in the limbs generally disappear early. The mental condition improves remarkably and with this change the physiognomy improves; local reactions after the injections vary greatly. Rost has given over 1,000 injections, and in no case was there any bad result nor was the disease increased in virulence. In nearly all the cases the improvement has been clear; in a few it is rapid, but in the majority the improvement has been slow, but steadily continued. He has given as many as sixteen injections, and in some cases no sign of improvement until after the sixth injection was noted. The difficulty in making a leprolin of constant strength makes it imperative to increase the dose if it is not found to cause a reactionary fever of over 100° F. and the interval between the injections has been restricted to ten days, as some few days seem necessary to allow the patient to recover after the fever, besides which a too rapid recovery must not be expected in a disease which is so decidedly chronic; the action of leprolin is antitoxic and not auto-antitoxic.

In 1897 Washburne made an anti-pneumococcic serum prepared on a large scale which he obtained by injecting a pony with increasing doses of cultivations of the pneumococcus; the potency of the serum being tested

by mixing varying quantities with a tenfold fatal dose of a living cultivation of the pneumococcus, and injecting the mixture into the peritoneal cavity of a rabbit; .03 cubic centimetre of the serum was the smallest quantity which, when tested in this way, protected the animal from death; while animals which had already been infected could be cured by injecting larger quantities of the serum, provided the treatment was adopted not too late. The serum was thus shown to possess a distinct therapeutic action, and a number of cases of pneumonia were successfully treated with the serum. An account of the action of the serum and of the method of standardizing has been published by Washburne and Eyre, but it is not in general use as yet and probably will not be.

Bering defined "immunity to be the protection exhibited by an individual against the disease-producing activity of a poison in quantities that would be destructive for others;" according to Bering the rabbit which resists the poisonous properties of morphine given by the mouth or beneath the skin is immune, even though it succumbs to intra-cerebral injections. Immunity of this kind, as well as the resistance which many animals manifest to serpents' venom, tetanus and diphtheria toxins, tuberculin, etc., administered by the mouth may depend upon chemical changes brought about by the digestive fluids, or may depend upon purely physical reasons, the poisons being unable readily to pass through the mucous membranes, and discharged unchanged; hence the immunity of the rabbit to morphine may depend upon inability of the poison to osmose through the vessel walls.

It was noted by Bering that if animals be protected against fatal doses of tetanus toxin by an injection of tetanus antitoxin, it is possible to kill it by intra-cerebral injections of the toxin. Mixtures of toxin and antitoxin injected into the brain are harmless. This seems as if: (1) The tetanus toxin did not readily pass through the walls of the cerebral vessels to be neutralized by antitoxin contained within them; and (2) That the antitoxin did not readily pass through the neutralize and toxin injected into the brain; thus, if at the time of administering the intra-cerebral injection of toxin to the immunized animal the blood-vessels are damaged and blood infiltrates the tissues, the animal does not succumb to the injection, indicating that the reaction is a chemical one, requiring actual contact of toxin and antitoxin.

Bering classifies two varieties of immunity to poisons, the hematogenous and the histogenous, the former being a passive immunity, the latter an active immunity. For the histogenous form Bering prefers the term "isopathic," for the hematogenous form "antitoxic." This antitoxic immunity never becomes isopathic, is not hereditary, and disappears as soon as the antitoxin disappears from the blood, while isopathic immunity may be accompanied by hypersensitivity of parts of the body sensitive to the toxin.

Chronic bronchitis has been treated with great benefit by antistreptococcal serum; in Carrière's case there were febrile temperature, profuse sweats, and abundant expectoration, with general signs of bronchitis with emphysema, together with some evidence of a cavity at the left apex. The sputum was repeatedly examined, and while it contained neither bacilli nor elastic fibres, streptococci were constantly found. After an injection of 10 c.c. of antistreptococcal serum, the temperature first rose, but soon fell to normal, and improvement set in; two weeks later the expectoration had greatly diminished in amount, not exceeding 5 or 6 oz., and was more mucous

and purulent; general improvement was noted, although the physical signs were unaltered, and a second injection of the same amount was made. Three weeks after the second injection, the patient left the hospital greatly improved. The cough was slight and the expectoration only amounted to between 1 and 2 oz.; while the cavity signs disappeared and in a month the patient was in fairly good health.

A few cases of scarlet fever are recorded in which antistreptococcus serum has been injected with apparent benefit. The dose is 10 c.c., once or twice repeated, but nothing definite has been adopted by the profession.

Ehrlich unhesitatingly declares, in opposition to Buchner and others, that the toxin antitoxin reaction is a chemical one. He claims that it has already been chemically shown by the fact that in the ricin-antiricin reaction one molecule of the antiricin combines with a definite unchangeable quantity of toxin, the process being analogous to the formation of the double salts; the toxin antitoxin reactions take place much more actively when brought together in concentrated solution. Emmerich and Low concerning the action of antitoxin believe that its virtue resides in a bacteriolytic enzyme which, while chiefly operative in dissolving bacteria, is also capable of disintegrating the toxin; many interesting facts are noted: such as the peculiar behavior of cultures of bacillus pyocyaneus in bouillon and call attention to the pellicle formation, the sedimentation of the bacteria when growth ceases, and their ultimate transformation into a gelatinous mass. The growth does not cease because the nutrient is exhausted nor because the excrementitious acid or alkali accumulations are sufficient, for when these are neutralized the bacteria do not always continue active growth. The conclusion they reach is that by their growth an enzyme forms which bring about their solution, at first slowly, then rapidly as they form, and, finally, more rapidly than they can develop.

These authorities regard the antitoxins as sera rich in enzymes, and point out that in all the cultures used to immunize the animals furnishing antitoxin both toxin and enzyme is present; the toxin is destroyed in the body with much difficulty while the enzyme slowly accumulates, and ultimately sufficient enzyme is contained in the serum to make it useful for protection and treatment. When antitoxic serum is used for treatment the virtue resides entirely in the enzyme, which dissolves the bacteria producing the disease and destroys the toxin.

The possibility of conferring an immunity against certain mineral poisons, if not conclusive, are certainly suggestive. If protection could be afforded against chronic lead poisoning it would be a great boon to workers in many dangerous occupations, for example, Buredke has succeeded in developing in animals immunized to arsenic a protective body which he calls antiarsenine. It is non-dialysable and, hence, not a product of the arsenic itself. He believes that its productive power resides in its ability to influence the leucocytes, as when he suppressed their activity its power disappeared.

But on the other hand, Gill has used the serum in the treatment of acute tetanus, and arrives at the following conclusions: The treatment aims at these objects: (1) maintenance of the patient's strength; (2) controlling, as far as possible, the painful spasms, by chloral; (3) restraining the development of the toxin in the blood by hypodermic injections of antitoxin; and (4) preventing the toxin from affecting the nerve cells in the higher centres by intra-cerebral injections of antitoxin. In cases

where the presence of bacilli is still suspected, local operation is necessary; (5) immediate improvement is not to be looked for after intra-cerebral injection. Semple reports a case where improvement was delayed for a week, and in the author's case for nine days.

The quantities given were 71 c.cm. by intra-cerebral, and 104 c.cm. by hypodermic injection of serum of ordinary strength. Apart from a scarlatiniform rash over the abdomen, lasting three days, the injections produced no ill effects.

Intra-cerebral injections of antitoxin have been tried because of the doubt about the efficiency of the hypodermic and intravenous injections of tetanus antitoxin. Several cases have been reported, and the injection has been made into the frontal lobes, and Semple suggests the following method: An imaginary line is drawn from one auditory meatus to the other, and from the centre of this line another is drawn to the outer angle of the orbit. The middle of this latter line is the spot where the injection should be made. The skull is trephined, or an opening made by a drill, sufficiently large to admit the nozzle of a syringe. The serum is concentrated, and the injection is made slowly. Carless has found that out of twenty-five patients treated in this manner eleven recovered and fourteen died.

Gibbs reports a case where it was thought that the fatal issue was due to the particular method of injection employed. There were found abscess cavities in the frontal lobes on each side, containing two ounces of thick pus communicating with the left lateral ventricle into which the pus had passed, and it also communicated through the great transverse fissure with the cerebellar fossae.

The abscess cavity on the right side was smaller and less congested, and contained about an ounce of pus. Bacteriological examination and cultivation showed the presence of cocci possessing the characteristic appearances of *staphylococcus pyogenes aureus*. Gibb thinks it difficult to believe that sepsis was introduced with the serum, as every precaution was taken.

In closing I would say that in puerperal fever no serum has yet been produced which causes any apparent result in cases in which the disease has invaded the tissues beyond the original seat of the infection, but there is no doubt of the efficiency of serum for cases in which the streptococci have not passed beyond the endometrium. Experiments upon animals show that the prospects of recovery become more encouraging the earlier the injection is made after the reception of the infections. The dosage should be regulated by the severity of the infections, the size of the patient (animal) and by the time that has elapsed since the infection was communicated; Bumm prefers the subcutaneous use of the serum, in large doses, to its intravenous injection; he administers it at the conclusion of severe labors, if there is disease of the placenta, if there is decomposition of the liquor amnii, and if fever is present during labor.

Alcoholic nostrums too strong for Lumbermen, states the *Jour. A. M. A.*, with relation to loggers in the northern woods. Employers seek to discourage the use of patent medicines in their camps, as the "lumber jack" is inclined to use them as a substitute for alcoholic exhilaration, to the subsequent disturbance of his working powers. This recalls experiences related of "Klondike" camps, in which the fact was thoroughly recognized that those who in the extreme cold took to alcohol generally succumbed.

A PRACTICAL CONSIDERATION OF VERSION.

BY WALKER B. GOSSETT, M.D., LOUISVILLE, KENTUCKY.

VERSION is a procedure by which the position of the fetus in utero is changed, the object being to substitute one of the fetal poles for some other presenting part, and is divided into (1) cephalic and (2) podalic.

Medical history shows that turning of the child in the uterus is one of the oldest obstetric operations; it was more or less accurately understood and described in the time of Hippocrates whose comparison of the fetus lying transversely to an olive similarly placed in a bottle is so well known. This great master, however, committed the sad mistake of maintaining that the fetus could not be delivered unless the head presented first. Though some centuries later Celsus corrected this error, Hippocrates' teaching still prevailed upheld and sustained by the great name of Galen (for who could dispute what Hippocrates and Galen taught), until after the invention of printing in the fifteenth century, when the illustrious French surgeon, Paré, established for podalic version its legitimate place. Guilleneau, the friend and pupil of Paré, advised turning by the head or feet in case the placenta came first.

The famous Louise Bourgeois recommended podalic version in prolapse of the cord, also in case of uterine hemorrhage during labor, the child to be then extracted by the feet, stating that it "was necessary to rupture the membranes as one forces an entrance into a burning house in order to save it."

Until invention of the obstetric forceps and knowledge of this instrument became the property of the medical profession, podalic version occupied a most important place in obstetrics, and turning by the head sank into comparative neglect, as prior to introduction of the forceps the accoucheur was powerless to terminate the labor even after he had brought the head into favorable position.

Among the aboriginal tribes of Mexico a curious custom is said to have prevailed in the management of cases of difficult labor: The woman was seized by the feet, suspended with her head downward, and vigorously shaken. If perchance the dystocia were due to a transverse position of the fetus, this rough and unscientific treatment might in a certain percentage of cases be effective, and to the few successes following such manipulation the custom doubtless owed its origin.

In Japan, before that country had attained its present high degree of civilization, it was customary to apply massage to the abdomen of pregnant women in order to straighten out a possible faulty position of the fetal ellipse. Among many primitive races of peoples some form of version is or has been in vogue handed down as a custom of ancient origin.

Conditions under which version may be demanded:

(1) Transverse presentations, (2) contracted pelves, (3) cases in which rapid delivery is necessary, provided delivery by forceps is unsafe or impracticable, e. g., placenta previa, rupture of the uterus, prolapse of the cord, convulsions, tedious labor, puerperal hemorrhage, etc.

Choice of version: (a) When correction of a malpresentation is all that is required, and circumstances do not render immediate delivery necessary, cephalic version may be practiced: (b) When rapid delivery is demanded podalic version should be employed.

Before attempting to practice version the operator

should acquire a true mental picture of the position of the fetus in utero, and personally know that adequate preparations have been completed to meet any emergency which may arise in connection therewith.

There are three ways of performing version: (1) By external manipulation, (2) by combined manipulation, and (3) by internal manipulation. Version by external manipulation is principally indicated to correct a transverse presentation, either (a) prior to the beginning of labor, or (b) if labor has commenced, before the liquor amnii has been discharged or as soon thereafter as is possible while the child is easily movable. In the performance of version by this method the woman is placed on her back with thighs flexed; the abdomen is uncovered, and the operator with his flat hands (one over the child's head, the other over the breech) gently pushes the fetal head toward the pelvic brim and the breech upward toward the fundus uteri; manipulations are practiced only during the intervals between pains; when a pain ensues manipulations should cease and the child be held with sufficient firmness to retain any degree of change in position that may have already been gained; when the proper position has been attained, if labor has begun, the membranes should be immediately ruptured thus inducing uterine contraction and continuation of the advantages in position previously secured; if labor has not commenced, assistance may be derived by placing a pad at the side of the uterus high up against the breech, and another on the opposite side lower down against the head, these pads to be retained in position by a suitable binder.

Version by combined manipulation is a method first proposed by Bush and Wright (Cincinnati, Ohio), and later advocated by Braxton Hicks, of London. It is the second least dangerous method, and should be tried after attempted external version has failed. In head presentations the procedure comprises three steps, viz.: (1) With the fingers of one hand inside the fetal head is lifted toward that iliac fossa toward which the occiput points, while the other hand outside depresses the breech on the opposite side: (2) As soon as the fingers inside touch the shoulder (or sternum) gently push or lift it in the same direction as the head, the hand outside still depressing the breech. This manipulation will readily bring the breech and knee within reach of the fingers: (3) The knee is grasped (the membranes if unbroken may be ruptured at this stage) and brought down, and the position of the hand outside is changed so as to push the head upward towards the fundus. At this juncture the foot can be reached and the case thereafter managed as a footling or breech presentation. In cephalic version by means of the fingers inside the shoulders are pushed in the direction of and after the breech, the other hand outside depressing the head.

Version by internal manipulation is comparatively easy before the liquor amnii has escaped, and when the uterus is not rigidly contracted around the child. The conditions to be ascertained before this procedure should be attempted are: (1) That the pelvis is of sufficient size to permit delivery of the child: (2) That the os uteri is dilated or at least dilatable: (3) That the presenting part has not descended so low or become so firmly impacted in the pelvis that it cannot be pushed back above the superior strait without risk of lacerating the uterus. Cephalic version by the internal method has become obsolete. Podalic version by the internal method comprises three procedures, viz.: (1) Introduction of

the hand and grasping the feet: (2) Turning of the child: (3) Extraction of the child. The operator should proceed with the first two steps only during the intervals between pains; when a pain occurs the hand should be held quite still, relaxed and flat, thus avoiding the risk of rupturing the uterine wall with the knuckles. The third step is accomplished during a pain. In the performance of this operation complete anesthesia is required. The patient is placed on her back, the hips brought to the edge of the bed; the operator's arm should be bared to above the elbow and after proper cleansing be anointed with sterile vaseline upon all parts except the palm of the hand; the finger ends of the hand whose palm corresponds to the abdomen of the child are brought to a cone and introduced into the vagina in the axis of the pelvic outlet, the back of the hand being toward the sacrum; the hand is carried into the uterus in the axis of the brim, the other hand outside making support and counter-pressure; with the thumb between the head and pubes and the fingers between the head and sacrum the head is grasped and lifted out of the way; the wrist resting against the forehead maintains it in position; the hand is passed upward and by grasping one or both feet the child is readily turned (second step); should the membranes be unbroken they should be ruptured when the hand passes by the head into the uterus.

In regard to ascertaining location of the feet: Use the right hand for right presentation, and the left for left. In a right lateral presentation, when the position is a dorso-anterior, the feet will be found toward the right and posterior part of the uterus above the right sacro-iliac synchondrosis. Pass the right hand along the hollow of the sacrum to the right and upward over the promontory and grasp the feet. In a dorso-posterior position of the same right lateral presentation, the feet will rest toward the left and anterior part of the uterus above the left acetabulum. Pass the right hand directly up and grasp the feet behind the pubes and acetabulum, instead of going behind the child's breech and pronating around it. This method is made easier by placing the woman on her side—the side toward which the feet are directed—while the operator, standing behind her, passes the hand—right one for right, and left one for left, as before stated—with its back toward the pubes and acetabulum, directly to the feet (King).

In a paper on "choice" of the feet in podalic version which was read before the Edinburgh Obstetrical Society by D. Berry Hart (*Scottish Medical & Surgical Journal*), the following suggestions are made: Seize the knee or leg which maintains the dorso-anterior position or converts the dorso-posterior into a dorso-anterior, that is take the farther limb in dorso-anterior cases the nearer in dorso-posterior cases. When, however, in dorso-anterior cases the breech is in the fundus, traction on the nearer leg may convert it into a dorso-posterior position, traction on the farther leg may not alter the posterior position of the back after version, owing again to the want of the necessary obliquity in the pull (Hart).

When the child has been turned the case may be left to nature unless circumstances render rapid delivery imperative.

Manual dilatation of the cervix is usually difficult and tedious, but if the operator is persistent sufficient dilatation can more often than otherwise be obtained within twenty minutes.

One should always be careful in flexing the limbs, as there is danger of rupturing the uterus.

It is generally best to bring down only one foot and make traction, leaving the other to assist in greater dilatation of the cervix.

TYPHOID FEVER IN NEW YORK CITY.

The Health Department reports an unusual number of deaths from typhoid fever at this time, and undoubtedly many of these deaths must rightly be attributed to the present short supply of the Croton water, and to its consequent impurities, which tend to the production not only of typhoid, but also of other dangerous diseases. It is impossible to guard from contamination the three hundred and sixty square miles of watershed which supply Manhattan and the Bronx. Indeed, we could not if we would; for part of this territory lies in Connecticut, where our authorities have no jurisdiction, and as for the rest, declares, truly enough, the *New York Times*, "the State machine has usurped control, considering its interests in adjacent counties more precious than the lives of our citizens."

On these accounts Dr. Darlington, the Health Commissioner of this city, has recommended the establishment of a filtering plant for the Croton inflow. Such filtration has passed beyond the experimental stage. It is certain that this method will cleanse more than 99 per cent. of the cloudiest water, making it clear and bacteria free. A filtering plant for the Croton supply of fine hundred million gallons daily would cost \$17,000,000 in two years, and three quarters of a million thereafter, including cost of operation, interest, sinking fund and depreciation. Does this seem a large amount? New York City's last annual budget, we believe, called for more than \$108,000,000. Our politicians could, on these estimates, have our water supply clean and pure, and still have more than a hundred millions a year to "blow in" on other matters less important than the health of our people. Nor should the question be one wholly of money. Dr. Darlington observes, however, that a careful computation of the yearly loss in wages of those who become ill, and those who die from drinking impure water, the private and public expense of caring for the sick, and burying the dead would more than maintain a filtration plant and pay for the interest on the investment.

LITERARY PRESCRIPTIONS.

For reading, during convalescence the *British Medical Journal* would prescribe literature that cheers but does not inebriate, and would contraindicate writers "whose style, like that of George Meredith, puts a constant strain on the understanding of the reader, or, like that of Mr. Maurice Hewlitt, irritates by its artificial glitter, or, like that of Marie Corelli, annoys by its frothy impertinence." Dickens should go well during convalescence—except Pickwick, at least in surgical cases, because of the many side-splitting episodes which would play havoc with the union of parts. And for the same reason, in order that healing granulations may not be interfered with, we would absolutely interdict Mark Twain. Smiles' *Self Help* is quite innocuous; but we should be cautious in recommending it, in order that the patient may not thereby be led to meditate over a mispent career, and to have suggested to him all the opportunities in life he might have grasped but did not; a

despondency might thus be induced which would delay a restoration to health, and which might even prove fatal. Thackeray, (except *Vanity Fair*, which is a pessimistic book), should go very well; Pendennis and Barry Lyndon will certainly entertain. The magazines of the day are placid and cheering enough; and in them one will seldom come upon a story sufficiently original or vigorous to excite anybody. *Punch* will, of course, be always in order—for its humor is of the soothing sort which never arouses one's risibilities, but keeps him always within the decorous limits of a smile.

A little music every day should be most restful to the convalescent; Mozart and Mendelssohn and Papa Haydn are here the right men, for they composed always in mellowing, calmative vein.

Endotracheal medication is strongly advised by Richardson (*Med. News*), as simple, safe and practical; the whole bronchial area can thus be medicated and portions of the lung reached by absorption through the pulmonary lymphatics. Violent coughing is not generally induced by this means, as is supposed by some; there is no more disturbance than in an ordinary application to the nasopharynx or larynx. The technique is simple. The patient is seated as for laryngological examination; the mouth wide open, the tongue protruded and held firmly by the patient. The laryngoscope gives the image of the epiglottis and glottis. The canula of the syringe is then directed over the epiglottis, and during an inspiration, by making a sort of see-saw motion of the syringe from below upward, it is made to penetrate between the vocal cords and pass the first ring of the trachea. The syringe is then relieved of its contents, while the patient inhales slowly and deeply. This is the all-important point to be observed in making successful injections. A two per cent. solution of cocaine may have to be sprayed into supersensitive throats for the first few treatments; on the other hand some patients can be successfully injected by simply depressing the tongue and guiding the syringe directly over the tip of the epiglottis into the larynx and trachea, without even the use of the mirror. It is not likely one can treat children by this method. The choice of syringe is very important; that of Schrader, made by Tiemann of New York, is excellent. There is a glass barrel enclosed in metal and having a spring attached to the piston. The syringe is relieved of its contents by gentle pressure with the index finger on the spring where the liquid is allowed to flow out quickly or slowly, according to the operator's will.

The medicaments selected should be antiseptic, stimulating, non-irritating and soluble in the vehicle employed. Watery and mucilaginous solutions have proved too irritating; oily solutions are better. The volatile essential oils eucalyptus and thyme may be combined with menthol, camphor, creasote, iodoform or orthoform, according to indications, with olive oil as a vehicle. The injections should be given daily; and one or two drachms may be given at a time; there may be two or three injections at a sitting. A great factor in favor of this treatment is that it does not disturb digestion or interfere with other treatment. The therapy includes bronchitis, asthma, tracheitis, bronchiectasis, and pulmonary phthisis. The author's favorite mixture is of five per cent. campho-menthol with eucalyptus and thyme and sterilized olive oil or a highly refined bland petroleum.

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Teach me never so much and I hear or retain only that which I wish to hear, what comports with my experience and my desire. Many eyes go through the meadow, but few see the flowers.—EMERSON.

PERFORATION IN TYPHOID FEVER.

THE physician, hunting for helpful data in reference to this sad occurrence, need not look back many years in medical literature. It was one of the occasions found when he was compelled to fold his hands and admit his own impotence. Now there is a chance for life which should not be neglected. In fact, the physician, like the skilful pilot, must now watch for its approach, ready to act on the shortest notice. He must note the condition of the patient constantly, the condition of his abdomen, the frequency and character of his stools, the presence or absence of blood and he must warn the attendants to keep up this supervision in his absence. Instead of a complacent ease in nursing typhoid, there must be the most intense vigilance, never relaxing day or night.

Extensive studies of the same class of patients under the same conditions by the same physicians are peculiarly valuable in such accidents as these. Recently Scott in the *University Medical Bulletin* studies the cases at the Pennsylvania Hospital for five consecutive years. This hospital has had a most extensive experience in this class of cases, drawn from every rank in a large city. His collection includes every case, whether admitted into the medical or surgical wards. In the English hospitals the occurrence of perforation was as follows: St. Bartholomew's in seventy-five hundred cases there were three hundred and forty deaths and one hundred and seventeen cases of perforation. At Brisbane there were thirty-three hundred cases and two hundred and forty deaths and ninety cases of perforation; at the Marten Hospital there were nineteen hundred cases with three hundred deaths and ninety-six cases of perforation. At the Pennsylvania Hospital,

there were nineteen hundred cases with one hundred and fifty deaths with forty-eight perforations. Hence, it can be seen that this accident occurred in about one-third of the cases which died, which is a larger percentage than usually supposed. Taking the deaths from typhoid in 1900 as 35,379 in the United States this percentage would give over eight thousand deaths yearly from perforation.

Taking these fifty cases, it was found that seven occurred between the ages of five and fifteen, fifteen between fifteen and twenty-five, sixteen between twenty-five and thirty-five, eight between thirty-five and forty-five and only four between forty-five and fifty-five. The great majority occurred in patients under thirty-five, which is only natural as typhoid fever is a disease of the young. Curiously enough, forty-five of these cases were males. The occurrence of perforation was noted only twice in the first week; ten times in the second week, twenty-two times in the third week, seven times in each of the fourth and fifth weeks, while one case occurred respectively in the sixth and seventh week.

As to the severity of the cases, six were mild, ten were of ordinary severity, twenty-seven were severe and in seven no history was recorded. In eighty-six per cent. of cases the ileum was the seat of perforation and the great majority of these cases were within twelve inches of the ileo-cecal valve—as to local symptoms, pain, tenderness and rigidity, while sudden, sharp severe pain was present in the majority of cases, yet it did not occur in all. No pain was complained of in six cases. Generally, however, the pain was sudden, severe and agonizing, causing the patient to cry out or wakening one from a sound sleep and localizing itself in a special zone. Tenderness is a far more reliable guide, for it was present in at least seventy-five per cent. of cases while rigidity was less frequent. Distention was a late manifestation and not a safe guide. The classic symptoms, hemorrhage and chills, were not so important; in over sixty-six per cent. no hemorrhage was noted, while chilliness or chills were present in only fourteen per cent., nor was the change in temperature diagnostic, not changing in fifteen cases, slow fall in ten, immediate fall and rise in four and in two cases normal temperature when perforation occurred.

The most interesting feature of Scott's paper is the surgical report, for thirty-nine of these cases were operated on with twelve recoveries. In the other eleven cases no operation was done and none recovered. In the cases operated on four died of other causes than the perforation. In the non-operative cases, seven were undiagnosed and in three no operation was permitted by patient or family, or it was considered hopeless.

The cases that recovered from operation seemed to run in groups, and some of them were desperate indeed, often twenty-four hours after perforation, but

where hemorrhage occurred with the perforation the cases were uniformly fatal. The principal lessons from Scott's paper are that perforation is more common than is usually supposed, that classic symptoms are often absent and that no case is too desperate for surgical interference; it frequently happens that mild cases succumb while very ill patients recover from the operation.

THE PROBLEMS OF ARTERIO-SCLEROSIS.

THE problem of blood pressure in arterio-sclerosis is a vital one, for the vessels are weakened and stiffened. Dunn has measured the blood pressure 1,000 times in 440 patients with arterio-sclerosis with Gaertner's tonometer. He found that in 120 subjects the blood pressure normal or below; in all the other patients the blood pressure was above normal. He observed in 36 out of 80 cases with low blood pressure angina pectoris, while in 8 cases the sharp accentuation of the aortic second sound was the only symptom on the part of the vascular system, the blood pressure in this group being only 90 mm. to 140 mm. In a group of 14 cases there were pronounced subjective disturbances and corpulence, and changes were found in the heart, with signs indicating dilatation of the arch of the aorta and sometimes also of the aortic orifice, while another group of 22 presented the same findings with the exception of the stoutness.

In all his cases of normal or low blood pressure the arterio-sclerosis was evidently restricted to the large arteries, while the smaller were intact; most of his patients were middle-aged, although some were quite young. In 35.7 per cent. of 380 cases of arterio-sclerosis corpulence was noted, the proportion being higher among the subjects with high blood pressure. Reduction of the corpulence frequently seemed to restore the pressure to normal. He found functional overpressure to be very rare. Therapeutic measures to reduce the blood pressure were seldom successful except in corpulence, although, of course, the general condition was much benefitted by hygiene and measures to tone up the nervous system and the heart muscle. While the heart is sound and vigorous, the changes in the arteries are effectually compensated, but long-continued over-pressure entails hypertrophy of the left ventricle, although it may not be clinically evident. Measurement of the blood pressure may thus determine the size of the heart better than mere percussion. The pulse was found to be rapid in 40 out of 136 cases of high pressure; in one instance the pressure was 240, the pulse 200; in another, with a pressure of 250, the pulse was 120. Fully 25 per cent. of these patients were neurasthenics. Tachycardia with high pressure was a bad symptom, showing the approach of disturbances in compensation.

Arterio-sclerosis "colic" is a curious complication be-

ing really neuralgia of the lumbar sympathetic; this fact is shown by the likeness between the spontaneous pains and those induced by pressure on the sympathetic; the irradiations of the pain are identical, showing that the colic is, in fact, neuralgia of this portion of the sympathetic nerve, with possible involvement of the celiac, aortic and hypogastric plexuses, the neuralgia being due to irritation. It is explained in this way: the aortic plexus lies close to the aorta, and any inflammation of the adventitia is liable to affect the plexus; inflammation of the adventitia being common in arterio-sclerosis. Periarteritis is an almost constant accompaniment of arterio-sclerosis, and the involvement of the adjacent nerve is almost inevitable; for example, the superior mesenteric ganglion actually surrounds the origin of the superior mesenteric artery; hence, the epigastrium is so frequently the location of the arterio-sclerotic pains. The sclerosis of the splanchnic vessels entails, moreover, hyperemia or inflammation of the lumbar sympathetic as an inevitable consequence, either from sclerosis of the nerve vessels or collateral congestion, which explains why arterio-sclerotic colic usually comes on after physical exertion, for the congestion in the vessels of the plexuses, resulting from exercise, superposed on the hyperalgesia resulting from the permanent congestion produces pain. This congestion may also produce excessive functioning of the suprarenals, this hypersecretion of adrenalin may produce cramps, as seen in experimental research. Vaquez reported last year that his experiments revealed a marked tendency to cramps on the part of sclerosed vessels, and that hyperplasia of the suprarenals was apparent in such cases, which observation has been confirmed by others. Buch believes that the process in angina pectoris is much like that in arterio-sclerotic colic, and they may occur together. Certainly, treatment of arterio-sclerotic colic based on these ideas is remarkably effectual. Strophanthus may not only abort an attack, but may ward off recurrences; and as the pain is relieved by pressure on the abdominal plexuses and aorta, massage seems to be indicated, combined with Swedish movements. More or less permanently favorable results were obtained in Buch's cases by the medicinal and general treatment outlined. In some patients the manifestations of the arterio-sclerotic condition were banished for several years. He believes in consequence that the prevailing pessimism in regard to arterio-sclerosis is not justified, and the cases on record of local arterio-sclerosis of the extremities, from nervous influences alone, teach that the nervous system should not be ignored in the treatment.

Savill contends that the pathology of the different tunics of the arterial system should be studied separately, just as are the different coats of the heart; for this purpose careful histological methods and a large number of specimens are necessary before generaliza-

tions can be made; neutral and acid orcein stains being valuable aids. Advanced atheroma and a considerable degree of intimal and adventitial sclerosis may exist without serious consequences and be compatible with extreme old age provided the muscular tunic is not affected. The prime importance of the muscular tunic relatively to the intima and adventitia, in that it constitutes the functionally active structure of the arterial system and the regulator mechanism of the whole body. The existence of arterial hypermyotrophy as a substantive generalized change in the arterial system; the importance of its recognition by reason of the potential evils in the way of circulatory derangement, circulatory accidents, nutritional disturbances, disturbance of the balance between the heart and arteries, and the degenerations which are apt to ensue. It is the first step towards senile or generalized decay and is the main cause of senile or postural vertigo at any period of life. The combination of arterial hypermyotrophy and focal necrosis of the media is a most deadly one and may produce death by hemorrhage at a comparatively early age. Arterial hypermyotrophy may result from chronic renal disease, but it has many other causes, all of which are capable of producing high arterial tension.

All persons with a tendency to rigid arteries should be prohibited alcoholic drinks, and cautioned against all forms of violent exercise or overwork; and, further, should arrange their affairs so as to have as little worry as possible. Butcher meats should be reduced, or better still, cut off entirely, for there is no fear of the patient starving. Enough animal and nitrogenous products can be obtained from milk and eggs, while in bread and many vegetables there are nitrogen-bearing compounds. The elimination from the dietary of alcohol, meats, salmon, lobster, game, turkey, goose, duck, cheese, beans, and the more highly nitrogenous foods, will, in time, relieve the system of those waste products that are causing rigidity of the arterial system, while the emunctories should be kept active; the skin and kidneys should be made to do active duty. This can always be brought about by inducing the patient to drink plenty of water, which when once introduced into the system must come out somewhere, and its main channels of exit are the skin and kidneys, and there is no better solvent than water, for it dilutes the bile and urine, lessening the tendency in these cases to gall-stones and renal calculi; it washes out of the system the compounds of uric acid that act so injuriously on the liver, kidneys and smaller arteries. If the hygienic and dietetic treatment be carefully observed, there will not be much need for drugs. One drug, however, deserves special mention, potassium iodide, "the drug of the arterial system." It need not be given in large doses; 2 to 3 grains in water, after meals, will prove quite ample. It will act better and cause less annoyance to the patient if it is combined with an equal dose of ammonium carbonate.

THE SHIP SURGEON.

IN the present overcrowded condition of the medical profession, any service for medical men is to be welcomed, provided that it is compatible with professional standards of dignity. With the exception of the three government services, in the army, navy and Public Health and Marine Hospital corps, America offers surprisingly few formal positions for physicians, outside of private practice. Contract positions which pay adequately, are mainly limited to comparatively few mining and manufacturing establishments on a large scale and the social features of such a life are usually objectionable. Civil positions which can be considered seriously, except as side issues in private practice, are mainly confined to insane asylums and the two or three chief executive appointments in the health departments of large cities. Hospitals, penal institutions, charitable institutions for the defective classes, etc., afford few openings for a physician at any supporting salary. Life insurance work employs a considerable number and the tendency is more and more to a restriction to a few well-salaried positions, rather than to disbursing a greater sum among a disproportionately greater number of private practitioners. The vast majority of all appointive positions, whether governmental or private, can be considered only as aids in the building up of a private practice, the small salary or receipts in fees being entirely inadequate even to provide the necessities of life.

The marine passenger service affords a desirable and comparatively well-paid opening for a few physicians and if the attention of legislators is once called to the subject, the number of positions will undoubtedly increase, as the laws of our country are strangely lax in requiring medical aid for passengers on fresh-water boats and those coasting along the ocean and for the crews of large freight vessels. It is obviously unreasonable to require a medical officer for the smaller freight craft, unless for long voyages, or for excursion boats, yet it is certainly in accord with ordinary principles of humanity and with the custom of providing comforts and safeguards for travelers, to urge that all boats which are out of touch with land for a week, and all, whether on salt or fresh water, which carry more than a hundred passengers, which are subject to storms and which make continuous trips of more than a day, should be provided with a surgeon.

It is to the discredit of our country that the great majority of ocean-going ships are controlled by foreign nations and, therefore, mainly subject to foreign laws and outside the jurisdiction of our own laws, except as American interests are very directly concerned. We understand that German and French ships are required to be officered with citizens of

those countries. The surgeons of the Dutch ships are American, partly on account of a courteous and businesslike deference to the fact that most transatlantic travelers are Americans, partly because the customs of European professional life do not tend to that mental elasticity and tact so necessary in a surgeon who is under an almost naval discipline, who is also expected to act somewhat in the capacity of host to the company's guests, and who must be sanitarian, surgeon and physician combined, and must adapt himself readily to the most diverse social status of patients from first cabin to steerage. English ships, we understand, sometimes carry American and Canadian as well as English physicians.

The position of ship's surgeon is an ideal one, in many ways, for a recent graduate, but it is almost impossible for such a one to obtain the position, not only because of the relative scarcity of openings, but because the policy of the various lines is to appoint men of some experience, and, by preference, those inclined to regard the appointment as fairly permanent. Thus the average ship's surgeon is a man of at least ten years' experience, often in the same line, and it is by no means rare to find men growing grey in the service and retiring after a life-time on the ocean. The ship's surgeon is, as a rule, not contented with his lot. But what salaried physician is, unless he is at the head of a large institution or of some important health department?

Half or more of the surgeon's time is spent on the water, where he enjoys better quarters, has better attendance than, and the same luxurious fare as, a first-cabin passenger, without being subject to any of the expenses of shore life, or the incidental expenses of passengers, since even his tobacco and liquors are supplied by the company with a liberality which is appalling to a total abstainer. Even when the ship is lying in port, the surgeon usually has the privilege of occupying his room and of having his meals on board, though, as the duties involve only a daily visit to the ship and entire leave of absence may often be obtained, most surgeons prefer to engage quarters on shore, even if they have no family. As living expenses, clothing, etc., are much cheaper in Europe than in America, the necessities cost the ship surgeon not over half and, with a little economy, not over a third or quarter, what the American physician in private practice would have to pay for decent food and lodging, clothing, etc. Professional expenses such as office rent, telephone, buggy, instruments, books, drugs, etc., are either unnecessary or are met by the company. The income varies considerably according to the size of the ship, and, in some cases at least, according to the number of passengers, as some companies pay a very small salary and a much larger but variable amount, on the

profit-sharing principle. On the average, the actual cash receipts of the surgeon vary from \$1,000 to \$2,000 a year and, for the reasons already mentioned, this income really represents an income of from \$1,500 to \$3,000 on shore, not to mention the fact that the board for fully half the time is considerably more luxurious than the average man with an income of \$3,000 enjoys. In other words, the ship's surgeon gets considerably more than the average American practitioner, whose total income is usually estimated at \$1,000, and yet by no means an excessive amount when we consider the position from the standpoint of a man of ability, engaging in the work for a lifetime or a series of years.

But no position in life is without its disadvantages. The physician in private practice, though at the beck and call of any one who requires his services, is still remarkably independent in his ability to do as he chooses in any particular event. The ship's surgeon, though usually outranked only by the captain, is, at least in theory, absolutely controlled by the latter, and he comes directly in contact with this authority, while both captain and other officers occupy a very humble position with regard to the company. Of course, in the great majority of instances, the policy of the company and the character of the captain are too broad to descend to petty persecution of a subordinate—just as in the case of military and naval discipline—still, the feeling is somewhat different from that of the sovereign American citizen in business for himself and with nothing but the law of the land and his own conscience to dictate to him. We can imagine—though we have no instance in mind—that at times, a dictatorial land official or a captain who is a martinet or a colleague of malicious disposition, may render the position of ship's surgeon very far from desirable. Again, from the purely social standpoint, the ship's surgeon encounters problems easy enough for a gentleman of the world, exceedingly difficult for one who is unsophisticated. Not only must he recognize and make others recognize that he has superiors and inferiors in the personnel of the ship's officers and crew, but he must adapt himself to all classes of passengers from the peasant emigrants who will kneel and kiss his hand if he is at all considerate of their welfare—and perhaps share their vermin with him—to European aristocrats or cod-fish American aristocrats, who may be offensively patronizing or openly insulting. Perhaps the hardest problem is to deal with those who are too friendly—the traveling physician who expects to be shown the mysteries of the steerage, the convivial gentleman who wishes the doctor to get drunk with him, the professional or amateur gambler, the susceptible widow, the jolly party who would like to retire to the privacy of the

doctor's cabin for a high old time. To maintain professional and official dignity, to be courteous and entertaining to all, to respond to overtures of personal intimacy, to avoid anything like familiarity or partiality, to maintain the absolute secrecy as to internal matters required on shipboard, requires the fine art of a diplomat.

In its purely professional aspects, practice on a ship is somewhat analogous to that in the army or navy, in that the doctor must, theoretically, always be prepared to treat any kind of a medical or surgical or special case, without opportunities for acquiring much experience in any serious condition, and with many drawbacks, such as lack of assistance from trained nurses and colleagues—for the policy of the ship is against consulting even with such physicians and surgeons as may be accidentally available,—the absence of proper operating rooms, and the instability of the ship. We may also mention the lassitude of the ocean life which seems absolutely to prevent the concentrated and prolonged effort of which workers on land are capable. These last two factors, especially the former, render refinements of chemic and microscopic investigation out of the question, and, as the passengers are under observation only for a few days, and as any serious acute or chronic disorder necessitates the retirement of any member of the crew, there is no opportunity for other than emergency practice, mainly of a comparatively trivial nature. Thus, certain professional ambitions render ocean practice out of the question, except transiently, and, as has been said, such appointments are not easily secured by those whose sole object would be a fairly remunerative position with opportunities for brief but frequent trips to European centres of medical education.

One of the embarrassing problems of the ship surgeon is the question of fees from cabin passengers. We believe that all lines forbid this source of income, and that all wink at infringements of the rule. The reason is not difficult to find. The company pays the surgeon a fair sum for taking care of the health of the crew and the steerage, including attention to various sanitary matters, and business necessitated by the quarantine and immigration laws. The company, thus, insures the presence of a competent physician for passengers traveling for health, pleasure or business. By so doing, it avoids a considerable degree of danger of suits for accident or lack of attention—and indeed, it is compelled to do so by law. It is obvious that a passenger who receives an injury or who becomes ill through any fault of the company or purely accidentally, through no negligence of his own, should receive medical aid at the expense of the company. It is equally obvious that the passenger who suffers from toothache because of fail-

ure to secure proper dental care, or the one who comes on board with a venereal disease, or on the verge of delirium tremens, or who has some chronic ailment, or even an acute disease not ascribable to conditions developing after embarkation, ought to pay his medical bills just as if he was on shore. Of course, there are always persons accustomed to the European paternal system of medical relief, those short of money and those whose policy is to get all they can for nothing, but the majority of self-respecting passengers will voluntarily pay the surgeon for any attention received. Yet the feeling that such payment is voluntary, that it cannot be enforced or even demanded in a businesslike way and that it is contrary to the letter of the regulations, can hardly be a pleasant one. Of course, so long as the doctor does not unduly urge this payment, the company does not object to his receiving it. The literal enforcement of the rule would, after the usual delay inevitable to any readjustment, result in one of two alternatives: either the quality of the medical service would deteriorate, which would soon mean a great expense to the company in the form of damage suits and loss of patronage, or the company would have to increase the pay of the surgeon by an amount equal to the present average income from private practice. But, no matter what the salary of the surgeon, the majority of persons who now voluntarily pay him, would continue to insist on making some return and it would be impracticable to enforce a rule to the contrary. All things considered, it would seem better to accept existing conditions and to formulate schedules of charges for the first and second cabins, with exemptions for services directly necessitated by any fault or accident for which the transportation company would justly be liable.

With all its drawbacks, the position of ship's surgeon is one of honor and responsibility and one that is, on the whole, at least as well recompensed as most official appointments on shore or private practice, excepting under more favorable conditions than the average. It involves no especial risk, and, like most institutional work, it is free from the vexations and dangers of exposure incident to practice in which transportation to and from patients is a serious problem.

A PHYSICIAN'S ACQUITTAL.

Professor Dührssen, when operating on a woman for the relief of sterility, found it unexpectedly necessary to remove the uterus on account of uncontrollable hemorrhage. It was held that he should have informed the patient beforehand of the possible danger of the operation. But the Court decided that a physician is not legally bound to inform his patients in regard to the dangers of any affection or disease. In the present case he was unable to foresee the possible danger, as all his similar interventions in the past had proceeded without mishap. On appeal the decision was reaffirmed.

CHOLERA.

THERE is an epidemic of cholera in Germany which has some points in common with that of yellow fever in our Gulf States; and one point at least in which there is absolutely not the slightest resemblance. We refer to the panic born of ignorance and fear which has characterized the behavior of many of our citizens in New Orleans and other Southern communities; while on the other hand the epidemic of cholera in Germany is absolutely under scientific control, every physician in cholera districts is an agent of the Bureau of Infectious Diseases, and "all the inhabitants are auxiliaries of the medical authorities." Pity we cannot sometimes have among us a benevolent despotism, instead of a chaos-breeding condition of things such as is brought about by obstinate stupidity and disregard of the wholesome teachings of science. In the epidemic now in Germany the only enemy which has to be contended with is the cholera bacillus, "which is travelling in the streams or moving slowly from one locality overland to another, attached to articles of use or in human organisms." The physicians teach, and the people heed with understanding, that the only manner in which the bacillus is dangerous is through the digestive tract by means of infected fluid or food-stuffs; that if drinking water is boiled and food is cooked there is practically no danger. The people are not to bathe in rivers; they are not to hide suspicious illnesses or deaths from the authorities, lest the epidemic spread; they are to wash their hands repeatedly. These admonitions are promulgated by means of red placards, police and newspaper cautions and sanitary leaflets. In every household domestic councils are held. Garbage is promptly removed; premises are kept clean.

In Berlin the medical council of war sits every noon in the Ministry of Education, Worship and Health, taking fresh measures to meet the situation and deciding on additional means of prevention. Dr. A. Kafka, Chief of the Bureau of Infectious Diseases, has his headquarters in the infected area constantly changed; his sanitary motor boats patrol every stream investigate every craft, see that waterside places and resorts are closed, and visit the cholera stations established at intervals along the rivers; his special staff of 200 is constantly active. All these precautionary measures being known, the effect is decidedly reassuring on those who live within and without the infected area. In all the towns and cities of Prussia, states the *Evening Post*, exact instructions are sent out by the Government to physicians respecting the notification of suspicious illnesses and the prompt removal of such cases to designated places, and the disinfection of the premises. The principle laid down is that a suspected case must be considered as being

a genuine one until proved to be the contrary. Railway conductors are being instructed in the symptoms of cholera so as to be able to decide, when a person is sick on a train, whether he should be placed in a compartment by himself until a hospital town is reached. Numerous cholera inspection stations were established in and near infected areas.

This epidemic seems to have come from Russia, among agricultural laborers who came across the border; the frontier is therefore being carefully watched. It was talked about as early as September a year ago, when it appeared among the Russian garrison in Port Arthur. It then became known that it was prevalent among the Russian soldiers in Manchuria. The fear was then expressed of a visitation in the Spring; and at an anti-cholera congress held in Moscow in April the doctors present bitterly complained that the Government was obstructing the work of precaution. Soon after this meeting cholera appeared in a province close to St. Petersburg. Its first manifestation in Prussia was when two Russian raftsmen died from it on the vistula.

With regard to the protection of our own country: The American Board of Emigration at Bremen has ordered all steerage passengers bound for the United States to be at their port of embarkation six days prior to the date of sailing. This covers the period of incubation. Our National Health authorities have, in like manner, taken precautions altogether adequate. So that an extension of the epidemic to us from beyond seas is not to be feared.

In reflecting upon this modern scientific method of controlling an epidemic of infectious disease the physician would do well to read Dr. Hecker's book on European epidemics in the Middle Ages. He will then reach the conclusion, we think, that there never was on the footstool a calling nobler than his own.

STATISTICS.

THE science of statistics is not attractive to many, perhaps to most minds. There are those indeed who would hold that "a well-bred person never insists on facts." And many among the indolent would adopt the position of the Oriental gentleman, who, when asked for certain figures concerning his native city, replied that to ascertain them would be "both difficult and useless." Mr. Leonard Courtney, at a recent Lord Mayor's banquet, in bantering mood observed: "There was a poetry of statistics and, if they had only got the gift divine, they would be able to see in the array of figures, which seemed so dull and uninviting, pictures of the movements of life as exciting and interesting as any poetry could contribute." To whom Lord Onslow, with equal good nature, responded for the statisticians

that their work and duty was often termed dull. It was the business of the statisticians to state facts; and that of the statesman to make deductions from them. The facts were sometimes dull but the inferences were almost always entertaining. The statesman drew true inferences from the facts, but the politician often ventured into the realm of prophecy.

We would not, however, for our part, take flippantly the observation of Mr. Courtney just quoted. Statistics, we hold, are capable, like the yeast in the bread, of developing much poetry and imagination, the true sustenance of life. A famous novelist once acknowledged his plots to have been evolved from slight incidents which he came upon in the daily press. Consider, for instance, the statistical statement that "consumption kills every third or fourth adult." What a picture does this simple fact conjure up of suffering among the sick of this disease, of hardship and sadness among their surviving families, of poverty, rotten living conditions, occasionless burdens under which so much of humankind grunts and sweats and dies untimely. And how better appeal to the imagination of the electorate than by the simple statement that consumption brings about an annual loss to the country of at least \$240,000,000.

The science of the compilation and application of statistics owes its inception to the general scientific spirit of our age; and on the other hand statistical science is absolutely essential to general scientific development—forms, in fact, the basis of the latter. A survey of the progress of statistics made at the tenth session of the International Statistical Institute recently held in London, revealed that statistics are almost coeval with the century of great inventions. This Institute represents a movement for the improvement of this agency for social reform. The object it has very largely in view is to make scientific statistics no longer insular or continental, but of universal scope and application. It is expected that this sound foundation will be furnished for the work of legislation and administration; such is indeed in large measure already the case. The science of comparative economic conditions will be simplified by the reduction of the statistics of different nations to a common basis. City mortality, the classification of occupations, the methods of industrial remuneration, the mutual relations of international trade, and many other factors which make up modern civilization would thus be reduced to uniform methods of computation.

Of course statistics must before acceptance be examined from all points. There is not now, nearly as much as formerly, occasion for the observation that statistics can be manipulated to prove any position one cares to take. Nevertheless, although the science has been much improved during the last century, it

cannot, in the nature of things, be absolutely divested of the personal equation—as witness, vital statistics. One would think that birth and death rates can depend on nothing but accurate counting and properly calculated percentages. But, to begin with, some purely conventional treatment of still births must be adopted. Whether they are counted among both births and deaths, or among one only, or discarded altogether, will make a very perceptible difference in the numerical results. Besides, it must be decided, to start with, whether the percentage of births and deaths is to be computed on the basis of the initial population, or upon that of the population as its numbers are altered by these very processes.

The science of statistics must in fact be content to be a handmaid of the other sciences. It must not assume that the scientific investigator will be content to have merely objective facts and figures impinged upon his mind—there would here be no scientific progress. The true scientist has imagination, as when Pasteur conceived the likelihood of the rôle played by germs in disease, or when Koch conceived a specific bacterium to be in a causative relation to tuberculosis. Having formed his conception then does this true scientist search for data in support of his hypothesis, which he either maintains or abandons according as he is successful in his search.

So long, then, as the science of statistics is content to remain "an humble vestal in the temple of Truth" must she continue to be a powerful and indeed an indispensable factor in human progress.

THE EAVESDROPPING SCIENCE.

Physical diagnosis is the science which seeks to point out the condition of things in enclosures which it may not enter, concerning which all conjectures must be made from the outside. It is therefore exceedingly difficult work, and occasional mistakes should, rather than surprise us, be taken as a matter of course. Among such is that noted by R. N. Wilson (*Med. Notes and Queries*), who has seen a caseous pneumonia with amphoric breathing, a tympanic percussion note, a brilliant cracked pot sound and whispered pectoriloquy, in which the autopsy showed no cavity to be present. Wilson suggests the use of the tuning fork in the diagnosis of cavities; and we believe much can be made of this suggestion if it be thoroughly worked up. It is no more odd than the consideration of pitch intensity, quality and duration of the percussion note upon which we now rely. Wilson places the stethoscope over healthy lung tissue, and the tuning fork, set in rapid vibration and placed with the handle touching the skin, is made to approach the bell of the stethoscope. As the fork passes from normal tissue to a consolidated area the pitch rises and the note becomes much clearer; it may, indeed, become evident for the first time. If next it passes over a superficial cavity the note takes on a clear, sweet, musical character, which is never simulated by any other condition.

FORESTRY AS RELATED TO PUBLIC HEALTH.

THE preservation of our forests is certainly closely related to the public health, and the subject should interest the members of the medical profession as well as philanthropists in general. If our mountains are denuded, the water supply will be deficient even to the extent of endangering that required for drinking purposes and for cleanliness.

The subject is brought to our attention at this time by the efforts being made to save the forests in New Hampshire.

The lay press is exerting much energy in the undertaking, that excellent paper, the *Boston Transcript*, having already devoted considerable space to its consideration. According to the *Transcript*, General M. C. Wentworth, a member of the New Hampshire State Forestry Commission, sees little hope of having the White Mountain forests saved by the action of the State or National Governments. He believes that it will be so long before the New Hampshire Legislature or the National Government can be induced to appropriate the sum necessary, that the forests will have been cut, and permanent harm done. The New Hampshire Forestry Commission is empowered to condemn forest land when the cost of its purchase and future care is guaranteed by the parties petitioning for such action. Last fall, when work had begun on the stripping of the slopes of Mount Monadnock, toward the town of Jaffray, the citizens and summer boarders started a petition to have this land taken for a State park. A part of the tract was covered with the original forest and some with second growth timber. The petitioners, to save the primeval woods, backed their petition with a subscription necessary for the purchase, and that mountain side, of several hundred acres, is now a State park. General Wentworth believes that the same thing should be done in the White Mountain region, and offers to pay a thousand dollars himself toward a subscription to accompany a petition for the saving of the White Mountain forests. We believe that the people of New Hampshire and the thousands of summer boarders from other States would gladly support such a project, and that this plan is entirely practicable. It may not be possible to secure half a million dollars for this purpose, but enough could be secured to save a considerable part of the most desirable forest area.

If these forests can be acquired, there is an opportunity to render to the permanent residents of New Hampshire and to its summer population a noteworthy service. The census shows that fully three-quarters of the land area of this State, are under some form of forest cover.

There exists in the State a most efficient society called "The Society for the Protection of New Hampshire Forests," of which ex-Governor Hon. Frank W. Rollins, of Concord, is President.

This Society, according to the report just received, is

doing yeoman service in protecting the young growth by employing foresters in starting new forests, in promoting forest legislation, and in many other ways too numerous to mention. If any of our readers are interested in this cause or in the starting of a white pine forest, write to Mr. P. W. Ayres, State Forester, Concord, N. H., for his report. The subject of forest insects is also elaborated in a practical manner.

At a notable meeting of the National Forestry Congress in Washington, last January, Rev. Edward Everett Hale, Chaplain of the Senate, spoke forcibly of the mountain region in New Hampshire, as he knew it years ago, and its present condition when the last remnants of virgin forests are disappearing, of the operations despoiling the Presidential range, of the principal rivers in New England rising in the White Mountains, upon which many cities depend for manufacturing power, for navigation, and for drinking water, and of the desecration of one of the nation's places of rest and recreation.

The White Mountains, as Dr. Hale has so well pointed out, afford a resort greatly to be desired in one of the most densely populated parts of the country, and are used by many people beyond New England.

The members of our profession should be interested in the movement for many reasons, and if each will do his mite and urge others to do likewise, a great public benefaction will result.

MALINGERING.

IN probably no other phase of life has so much ingenuity been exercised as in the simulation of disease. As in the graver forms of malefaction, if such ingenuity were employed in equal proportion to honest ends, the resulting benefit would be positively dazzling. The science of malingering has become so perfected, in these days of morbid pity for the pseudo-afflicted, that its detection has become one of the most difficult of the physician's duties. In the art of shamming disease, states the *Lancet* truly enough, the rewards of proficiency are great.

Cases will recur to every practitioner: That of a famous beggar in the city of London, whose voluntarily paretic limbs stirred up the lively compassion of the passers-by, even of the poor, so that charitable gifts liberally flowed into his facile palm. A soldier was seized with paralysis of the right arm, the loss of power coming on suddenly and without obvious cause. All efforts of the suspecting regimental surgeon were unavailing, no proof being forthcoming that the lesion was feigned. The man passed triumphantly two medical boards, and was discharged. As he went off from the barracks on the top of the coach (it was in the day before railways) he waved a hearty good-bye to his comrades with his paralyzed arm. (*Lancet*.)

In the days when it was necessary for a soldier to bite off the end of the cartridge in loading his musket,

not a few had one or more teeth filed down or extracted so as to obtain exemption. We recall the diverting story of a man who at the onset of the civil war between our states, bethought him to have his index (the trigger) finger amputated; hoping that by this means he would be exempt from service. He made his wife his accomplice. They went into the back yard. He placed his finger upon the block where the family decapitation of fowl was done; his wife raised the hatchet usually employed for that purpose. At the moment of its descent the man's heart failed him and he withdrew his finger. He asked his wife to try again, declaring he would be firm this time. Again his heart failed him at the "psychological" moment. He asked his wife to try once more. This time he was determined that he would not falter; nor did his courage then fail him. But his wife, for her part, had reached the conclusion that now she would "take no chances." She considered that if she aimed for his wrist, she would just about catch the finger as it was being withdrawn. The man lost his member behind the carpus.

Cline had a case—a "pressed" sailor in the British Navy. (And under such circumstances, if ever, the malingerer is justified.) This man fell on his head, sustained a slight depression of the skull. He immediately became unconscious and all efforts to arouse him failed. He lay quietly, never moved, seemed deaf to all sounds; and at no time uttered a word. He could swallow foods, solid as well as liquid; and indeed made signs with his lips and tongue about meal time. This "unconsciousness" lasted for thirteen months. Then it was resolved to raise the depressed spiculum; flaps were made; a trephine was applied. "An elevator was then introduced to raise the bone, and as the bone was lifted up consciousness suddenly returned to the patient and he spoke." At that time the case was accepted as genuine; but we would not nowadays believe that the patient really lay unconscious for thirteen months, suddenly regaining his senses on removal of the depressed fragment of bone. The man was certainly a malingerer; and took this arduous method of leaving a service into which he had been forced.

Malingers, to attain their ends, will endure an extraordinary amount of pain and discomfort. A limb, for instance, has been held in a fixed position for many months, the application even of the actual cautery not sufficing to move it. Simulated joint affections are very various and by no means rare. Mental derangement is a favorite form of deception. The manifold and protean phases of hysteria are often simulated. Here we must bear in mind Moebus's definition of hysteria, as being a condition in which "morbid ideas control the body." Insanity is often feigned; the investigator will here be helped by the fact that two forms of insanity are apt to be stimulated in combination. The malingerer moreover cannot simulate successfully the persistent in-

somnia (prolonged beyond several days) which often occurs in the insane. The various cutaneous aberrations (hyper- or an-esthesia and the like) are easily feigned; "spinal concussion" is a frequent "dodge."

Attempts at malingering have oftentimes proved disastrous. As where a man excited an ulcer of the leg by means of a copper coin—with resulting gangrene, necessitating amputation below the knee. Another, in trying to excite hemophysis, swallowed a cork in which pins were inserted. He spat up blood realistically enough; became very emaciated; and died suddenly. On autopsy the cork and pin were found to have lodged in the pharyngo-esophageal junction; there was ulceration both into the esophagus and the common carotid.

To detect malingering is not always easy. Threat of severe methods of treatment is sometimes but not always effective. Threat of the actual cautery has cured not a few paralyses; but there are many cases in which it will be endured with equanimity. A man who simulated blindness was placed on the edge of a jetty and told to walk straight forward; he stepped out and fell into the water knowing that those who tested him would not dare let him down. Another who seemed to have paralysis of an arm allowed the knife to be placed close to it without flinching; but when thrown into the river he swam, using both arms vigorously.

Deception is often detected by suggesting to the patient new signs and symptoms. To say, in the hearing of a case with a supposedly paralyzed arm that "it is strange the little finger is flexed—it ought to be straight," may result in the little finger assuming the suggested position at the next seance. Anesthesia will clear up many an imaginary structural lesion.

PORTLAND—1905.

THE playgoer will tell you that the best part of a performance is its recollection. To attend a Shakesperian production—As You Like It, for instance—is an event. But this is nothing to the way in which the various scenes and speeches percolate into one's nature and temperament during the days and weeks following.

The physician who went to the Portland meeting of the American Medical Association is now in a like wholesome and contented frame of mind. The trip across the continent was good, wives and children in many cases accompanying, with here and there a sister or a mother-in-law; and in many cases several families making up special parties on special trains. Thus also traveled many fellow-members in local societies. The hospitality of this Pacific City of Roses, under the stimulus of its genial physician-mayor, was as generous and hearty as it was thoroughly appreciated. The scientific sessions were fully up to the highest standards of other years. The Lewis and Clarke Exposition was seen with much

gratification. The physician, forgetful for the time being of prescriptions and the dreary monotony of patients' complaints, enjoyed with his family and friends side trips to the Yellowstone Park, to the Yosemite, to Canada and Alaska. In the excursion on the Columbia river he perhaps caught salmon the sizes of which are now no doubt increasing an inch or so with each repeated story of the trip. For now is the pleasant aftermath of this memorable junketing; the physician having assimilated all this pabulum on his vacation, is now digesting it happily and profitably either at his fireside, in slipper and easy chair, or among such of his colleagues as were unfortunately not able to leave their homes.

In retrospect we note several important matters which were the outcome of this excellent meeting:

It was decided that in future the expense of the entertainment at the yearly meetings should be incurred by the Association. This is right; the whole-hearted hospitality dispensed by our Portland brethren must certainly have been an unjust claim upon many of them.

There are now nearly 20,000 members; during the past year some four thousand physicians joined. At Portland there were hundreds of non-members who took part in the scientific sessions; many of these signed the roll on the spot. All good physicians should become members, and thus insure a united medical fraternity.

It was found that by far the best attended sessions were those in General Medicine and Surgery. While many deservedly famous specialists attended, the number was not nearly so great as on former occasions. Verily it is possible that the general practitioner may venture abroad in the land, and come again into his own.

The papers read and the discussions were of the highest order of merit, as our readers will see from several epitomes which will appear in our clinical and therapeutic columns. Funds for the erection of the Rush monument and of the Walter Reid memorial were assured.

Three great movements were set on foot and are especially emphasized by the *Journal* of the Association: (1) The authorization of the publication of a medical directory by the profession itself.

(2) The emphatic endorsement of a movement inaugurated to suppress the rostrum evil.

(3) The completion of the machinery for systematically developing a higher standard of medical education through the appointment of a salaried secretary for the Council on Medical Education, who will devote his time to the work outlined by the Council a year ago.

Boston, 1906.

The chlorides and metabolism have been studied by Calabrese (*Riv. Crit. di Clin. Med.*) who has found a greater decomposition of albumins to follow upon a decrease of sodium chloride; the blood has also become poor in corpuscles and in hemoglobin. He concludes that table salt aids digestion not only as a condiment, but as an indispensable element for maintaining the normal condition of the organism.

BIBLIOGRAPHICAL

Dietetics for Nurses.—By Julius Friedenwald, M.D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Ruhrah, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. 12mo volume of 363 pages. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$1.50, net.

"Dietetics for Nurses" has been written on the same practical lines as the larger work on Diet by the same authors. It has been prepared both to meet the needs of the training school and to serve as a ready reference book for the nurse when on a case. The essentials of dietetics are given in a concise, clear manner, and the physiology of digestion with the various classes of foods and the part they play in nutrition have been carefully reviewed. The subjects of infant feeding and the feeding of the sick have been fully discussed, and a brief outline has been given of the principles involved in the nourishment of patients suffering from the various diseases in which diet plays an important role in treatment. A very useful feature consists in the extensive diet lists, with instructions, enabling the nurse to comprehend and intelligently to carry out the orders of the physician. Another commendable feature is the large number of recipes for the invalid's dietary. Altogether, it is an excellent little work indispensable to the well-trained nurse.

"The Psychic Treatment of Nervous Disorders."—

By Dr. Paul DuBois, Professor of Neuropathology, University of Berne. Illustrated by Smith Ely Jelliffe, M.D., Ph.D., and William A. White, M.D. 8vo, cloth, 471 pages, price, \$3.00, net.

This work gives the experience and principles of psychic treatment of nervous disorders, based upon twenty years of successful specialization and practice in this branch of medical skill. The work of the author is both that of psychologist and physician. Besides many psychological considerations, the author provides full descriptions of the methods used in his practice of psychotherapy.

The book is timely and worthy a place upon our shelves.

A Practical Treatise on Sexual Disorders in the Male and Female.—By Robert W. Taylor, A.M., M.D., Clinical Professor of Genito-Urinary and Venereal Diseases in the College of Physicians and Surgeons (Columbia University), New York. New (3d) edition, enlarged and thoroughly revised. In one octavo volume of 575 pages, with 130 engravings and 16 colored plates. Cloth, \$3.00, net. Lea Brothers & Co., Philadelphia and New York, 1905.

The eminent standing of the author of this excellent book in the profession accounts for the demand for three large editions of this volume in less than five years. The text covers in a practical manner the sexual disorders of male and female in all their bearings. In the present edition the anatomy and physiology of the subject have been amplified and many new illustrations added. The text has been treated in careful detail in the interest of diagnosis and treatment, both medical and surgical. Much new matter has been added especially in the sections devoted to the disorders of women. The work will be found of great practical value to the specialist as well as to the

general practitioner.

Manual of the Diseases of the Eye for Students and General Practitioners.—By Charles H. May, M.D., Chief of Clinic and Instructor in Ophthalmology College of Physicians and Surgeons, New York, 1890-1903. Ophthalmic Surgeon to the City Hospitals, Randall's Island, New York, etc., etc. Fourth edition, revised, with 360 original illustrations including 21 plates, with 60 colored figures. New York: William Wood & Company. 1905. Pp. 391. 12mo.

The author presents in this volume a concise, practical, and systematic manual of the diseases of the eye, suitable for the student and the general practitioner. It is not an easy matter to prepare such a book, and only an experienced teacher such as Dr. May should attempt this work.

The book is sufficiently comprehensive, up-to-date, of limited size, and still all the essentials are given for the purpose intended. The popularity of this volume is unmistakably shown in the manner in which the editions have succeeded each other, to say nothing of its translation into various foreign languages. The work can be highly commended.

A Text-Book of Physiological Chemistry for Students of Medicine.—By John H. Long, M. S., Sc. D., Professor of Chemistry in Northwestern University Medical School, Chicago. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1905. Pp. 434. Octavo. Price, \$2.50.

The author presents in suitable form in this volume, a brief account of the important principles of physiological chemistry for the use of medical students who may be assumed to have completed courses in the elements of general inorganic and organic chemistry. There is also given an outline of the chemical phases of the recent theories of immunity, and a short explanation of the important applications of the methods of cryoscopy and electrical conductivity and other physical processes in the field of chemistry related to medicine. The book is well suited to the use of the medical student to whom it is commended. The text is clearly expressed in concise language.

The Pharmacopœia of the United States of America.—Eighth decennial revision. By authority of the U. S. Pharmacopœial Convention held at Washington, A. D., 1900. Revised by the Committee of Revision and published by the Board of Trustees. Official from September 1, 1905. Philadelphia Agents, P. Blakiston's Sons & Company. 692 octavo pp.

This great work, which has been so long under revision, is now in the hands of the profession, and a debt of gratitude is due the committee which has performed the arduous undertaking.

There are so many changes in the text, that the old edition is useless, and every physician and druggist must have the new.

The standards of purity and strength prescribed in the text, are intended to apply to substances which are used solely for medicinal purposes and when professedly bought, sold, or dispensed as such.

The most important point in the revision is the change in strength in many of the preparations, in the interest of uniformity.

There is a comparative table showing the strength of the more important pharmacopœial substances and preparations in the preceding and in the present Pharmacopœia.

pœia. There is a list of articles added, a list of articles dismissed and a list of changes of official English titles. There is also much other valuable information along the line of its subject, in addition to the description of the specific drugs mentioned.

This authoritative work must find a place in every medical or pharmaceutical library.

A Ready Reference Hand-book on Diseases of the Skin.—By George Thomas Jackson, M.D., Chief of Clinic and Instructor in Dermatology, College of Physicians and Surgeons (Columbia University), New York. Fifth edition, enlarged and thoroughly revised. In one 12mo volume of 676 pages, with 91 engravings and 3 colored plates. Cloth, \$2.75, net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1905.

The great value of this volume lies in the clearness of its symptomatology and diagnosis, and the excellent judgment used in its therapeutic recommendations.

The clear diction and the very convenient alphabetical arrangement renders the work not only an exceedingly quick reference book for the busy physician, but adapts it especially to the needs of students. The demand for five large editions is ample evidence of the popularity of the book. Each edition presents a thorough revision of the subject, so that the work may always be consulted for the condition of the science of Dermatology as it really exists. The present revision has been particularly searching, and the subject matter has been brought well up to date. The Appendix, containing formulæ for Baths, Lotions, Ointments, Powders, etc., and prescriptions for internal treatment, is alone worth the price of the book.

Many new sections have been added, resulting in a considerable increase in size, and the work will be found of great value to practitioners, students and teachers.

A Text-Book of Pathology and Pathological Anatomy.—By T. Henry Green, M.D., F.R.C.P., Consulting Physician to Charing Cross Hospital, London. New (10th) edition. Thoroughly revised by W. Cecil Bosanquet, A.M., M.D., F.R.C.P., Assistant Physician to Charing Cross Hospital. Octavo, 606 pages, 348 engravings and a colored plate. Cloth, \$2.75, net. Philadelphia and New York: Lea Brothers & Co., 1905.

The vigor and vitality of Green's Pathology are excellent evidences of qualities which have won the favor of the profession. A book which has reached its tenth edition stands in no need of an introduction. This work has been from its first edition a simple, clear and adequate presentation of pathology and pathological anatomy—the foundation of all medicine. Each edition represents a thorough revision, but none, perhaps, so thoroughgoing as the present. The pages of this work have, therefore, always been consulted for the recent advances and condition of its science, and the diction of the work is so clear, so directly to the point, so easy of understanding, that the popularity of Green throughout the student world, and equally as a quick reference for the busy practitioner, is not to be wondered at.

Ergophobia is a new disease or rather a very old disease with a new name, which is derived from the Greek *ergon* and *phobos* and means a hatred or terror of work. This was the name applied by an English lawyer to the malady from which his client, a vagrant, was suffering; but the judge was uninfluenced in passing sentence by the impressive nomenclature.

RETROSPECTIVE THERAPEUTICS

Fluorescence in the human organism is discussed by W. J. Morton (*Jour. A. M. A.*), who holds that this influence is a sort of phototherapy dependent on the same principles as fluorescing solutions, electricity, etc., for its curative effects. The method includes filling cavities with fluorescent solutions as well as using these latter medicinally; effects are produced by the fluorescent excitation of the absorbed drugs, not due to the X-ray or to radium, but to the fluorescent light. What the latter lacks in intensity is compensated for by its nearness to the tissues. It is also possible by this means to improve skiagraphic effects and fluoroscopic examinations; the position and size of the stomach and other cavities can thus be determined; the thorax can be illuminated on the fluoroscope far more than it can by the X-ray alone. Morton reports good results in tuberculosis and cancer.

Ophthalmia Neonatorum is perhaps as serious a condition as any which may confront the physician, dooming the individual, as it sometimes does, to blindness from birth to the grave. It is, we believe, good routine practice to have always in the obstetrical bag a five-grain to the ounce solution of silver nitrate (the Credé method) and to instill a drop between the infant's lids immediately after delivery. As the head of the infant passes through the vagina any discharge may penetrate the palpebral fissure and infect the conjunctival sac. Two or three days after an acute purulent conjunctivitis may then supervene. There will then be swollen red lids, frequently adherent; when separated a purulent discharge appears. Neglect will almost certainly result in infiltration and finally perforation of the cornea with ultimately partial or complete blindness. The *Practitioner* divides treatment into prophylactic and curative. Leucorrhea or gonorrhea in the mother should be ascertained months ahead and cured. If it is not discovered until labor, the vagina should, if possible, be washed out with a weak antiseptic solution, such as 1-2,000, followed by 1.400 bichloride. Directly the child is born its face should be carefully washed with previously boiled water, especial care being taken with the eyelids; during the first bath the water of the bath must not come in contact with the child's face. The lids should then be separated and the eyes washed out with 1-6,000 bichloride (warm). One or two drops of nitrate of silver (Credé) or argyrol (20 per cent.) or protargol (20 per cent.) should then be instilled. For several days afterward the eyes should be watched for purulent discharge. Curative treatment begins with hourly washings of the conjunctiva with warm bichloride (1-5,000), completely removing all discharges. After several hours the palpebral conjunctiva should be carefully dried with soft lint and painted over with a ten-grain to the ounce solution of silver nitrate; and the conjunctival sac should then at once be washed out with a saturated solution of sodium chloride to neutralize the effect of the silver nitrate. This is done every day until the discharge ceases. Or a fifty per cent. solution of argyrol may be used in the same way; it is less irritating than the nitrate. A hazy cornea requires a drop of atropine (2 grains to the ounce) once a day; this tends to prevent iritis and synechia. The margins of the lids should be smeared with unguentum cetacei or vaseline, so that they will not become adherent during

sleep. Within a week the discharge should cease. The cornea rarely escapes altogether and if no other of the more common complications has occurred, it is found to be nebulous. To clear up opacities Pagenstecker's ointment (one grain of yellow oxide of mercury to the drachm of pure vaseline) should be used; or B Unguentum Hydrargyni Oxidi Flavi, pt. i; paraffini mollis, pt. iij; pt. unguent. A piece about the size of a small pinhead is to be brushed inside the margin of the lower lid every evening. This treatment should be continued for months, but as a rule the cornea will not become completely cleared. In all examinations the whole cornea must be seen in full; to this end the infant's head must be placed between the knees, and a suitable lid retractor used, great care being taken not to press upon the eyeball.

The diagnosis between typhus and typhoid fevers is not difficult in epidemics; it may be so, however, in sporadic cases. The *Practitioner* (April, 1905) would impress the following facts in the diagnosis of typhus: there is no preliminary epistaxis, though there may be bronchial catarrh; the onset is sudden, often with a rigor, the temperature rising to 102° or 103° F. in 12 hours, the pupils are equally contracted; the expression is dull, the conjunctivæ are suffused and the face generally congested; nervous symptoms and great prostration are early pronounced; the pulse is quicker than in typhoid and is not usually dicrotic; the abdomen is as a rule normal—not tender; there is no diarrhea or hemorrhage from the bowels; there are red papular spots which appear from the third to the fifth day on the trunk and extremities. They do not come out in crops. Hemorrhage takes place into the crops later; there is no subcuticular mottling; coma vigil is not infrequent; the blood does not give the agglutination test; the temperature varies between 101° and 104° for the first fortnight and then comes down more or less abruptly, crisis sometimes occurring. We like the *Practitioner's* term "enteric" fever, which is evidently that used by English physicians; it is less confusing than "typhoid," which is moreover a disease which present-day knowledge shows to be not scientifically related to typhus fever, although it was formerly supposed to be so.

Chlorosis requires for its successful treatment four factors (*Practitioner*): (a) Some form of iron, preferably Blaude's pills, in increasing doses. Osler gives one pill three times daily after meals during the first week; two tid, during the second week; and three tid during the third. The dose may then be diminished, but the patient should have some salt of iron for three months at least. (b) Rest in bed in a well-ventilated room or on a couch in fresh air. In chlorosis the cardiac muscles undergo fatty changes and if the heart wall is to recover itself and functionate normally afterward, rest is essential during the treatment. (c) A light, nutritious easily-digested diet. Milk is excellent except that it contains too little iron and that large quantities must be taken (and absorbed) to be beneficial. (d) The bowels must be carefully regulated. Constipation predisposes to chlorosis, and, if continued, may render the condition much worse. Saline purgatives (a mixture of magnesium and sodium sulphates) should be given every morning or every other morning. The following is an excellent prescription (which must be dis-

continued, however, if the first ingredient occasions gastric symptoms): \mathcal{R} , Tincturae ferri perchloridi, M. xij; magnesi sulphatis, gr. xx; sodii sulphatis, gr. xx; glycerinii \mathfrak{ss} ; infusi quassiae ad. \mathfrak{z} i; M. ft. mixt.; two tablespoonfuls to be taken three times daily after meals. Sir Andrew Clark's prescription was as follows: \mathcal{R} , Ferri sulphatis, gr. iv; sodii bicarbonatis, gr. x; sodii sulphatis, \mathfrak{z} i; tincture zingiberi, M. xx; spiritus chloroformii m. viij; infusi guassiae ad. \mathfrak{z} i; M. ft. mixt. Two tablespoonfuls twice daily after meals.

What Hunger is Scientifically is described by M. I. Knapp (*Amer. Med.*), as the sensation felt because of the contraction of the muscularis, either of the pylorus, or possibly also of the entire stomach, or of the duodenum; or of the muscular contraction in all these structures. If the contraction is more intense it is felt as a painful hunger; if it is slight the sensation of the hunger is also of a slight degree—sometimes evanescent. Hunger is a lesser degree of pain; and being produced by muscular contraction passes away after a certain lapse of time, even if no food has been taken. This means simply that the muscularis becomes tired and contraction gives way to relaxation. Absence of contraction, the inability to contract, relaxation, distension (all conditions being the reverse of contraction) result in anorexia, the opposite of appetite; provided, however, that such distension and the like are not caused by an overabundance of irritating acid gases.

Anorexia is the sensory symptom of distension of the stomach and upper portion of the intestine by non-irritating gases, accompanied by complete or partial relaxation of the sphincter—the condition which obtains in chronic gastritis, pyloritis and duodenitis.

The Sleeping Sickness was well described by Col. Bruce of the British Army Medical Corps before a Pietermaritzberg audience. Beginning in Uganda, the commission sent out by the Royal Society found that the disease existed only in a narrow area lying along the shore of the lake of that name. It occurred also on both banks of the Nile as far as Lake Albert and north along that river as far as Wadelia. The inhabitants in the small islands which dot the northern part of Lake Victoria are great sufferers. Thus the disease has evidently some predilection for the vicinity of open water, and the commission set out to ascertain the cause of this. In South Africa there has been a disease among cattle and other domestic animals also caused by a trypanosome (the causative agent in sleeping sickness)—the *Trypanosoma brucei*. This typanosome was conveyed from the sick to healthy animals by means of a biting fly, the tsetse fly (*Glossina morsitans*). It was therefore conjectured that in all probability the sleeping sickness would be found to be conveyed by a biting fly. Collections of all such insects in Uganda were made with the astonishing result that the distribution of sleeping sickness and of a biting fly, the *Glossina palpalis*, corresponded absolutely with one another. Further experiment then demonstrated that this biting fly could carry the disease from the sick to the healthy for a period of forty-eight hours. Other species of flies, subjected to precisely the same conditions, failed to give any result. Lastly, tsetse flies caught in the sleeping sickness areas and placed at once on healthy monkeys conveyed the disease in

every case. The sleeping sickness, which kills every one it attacks, has already caused the death of several hundred thousands among the natives of Central Africa. It was slowly spreading around Lake Albert to the south of Lake Victoria—wherever, indeed, the *Glossina palpalis* exists to convey it. There is no saying, declared Col. Bruce, to what extent it will not further devastate the African country. There is danger of its being conveyed across British East Africa into the "fly belts" of the East coast; even of its being conveyed to India, where a similar disease, called surra, exists among horses, and where there might exist a biting fly capable of spreading it.

Resorcin spray in Sycosis is advocated by M. S. Belgodere (*La Semaine Medic.*). A one per cent. aqueous solution of resorcin is used in an atomizer, the nozzle of which is held eight to ten inches from the affected part, and is employed for from ten to twenty minutes daily. The spray passes easily through the hair and penetrates to the skin. The hair is not shaved and it is not considered necessary to apply wet dressings of the solution, except during the night in severe cases. Belgodere finds that under this treatment the induration disappears and the tissues regain their normal condition, the cure necessitating a period of from two to seventeen weeks. We should say that since the parasite infects the roots of the hair beneath the epidermis nothing but epilation and inunction of resorcin or oleate of mercury ointment would be effective; under this latter (though more painful) method a cure should be earlier accomplished.

Landerer's Treatment of Pulmonary Tuberculosis is described by F. Schrage (*Munich. Med. Woch.*, 1904, No. 44). The objects are to produce (a) a general leucocytosis, and (b) an aseptic inflammation about the tuberculous foci. Landerer employs hetol, an easily soluble preparation of sodium cinnamate. Incipient and uncomplicated cases—having no rise of temperature and with but slight destruction of lung tissue—are most likely to be benefitted. Apyretic cases, with small cavities, are also reported to be amenable. It is considered that rapidly progressing and advanced cases should be treated only in sanatoria. The cinnamate seems to be curative in properly selected cases; following the injections, the evening rise of temperature, the rales and the night sweats disappear; the weight increases; the sputum is less and becomes bacillus-free. Schrage considers that the efficacy of this treatment should encourage us to make the diagnosis as early in the disease as possible. We thoroughly agree with Schrage, and would urge continued experiment with hetol. The search for some medicinal agent which will be distinctly curative in tuberculosis should not be abandoned. We should warn, however, against the use of any drug which might prove irritant or nauseating; the use of such a medicament would certainly prove untoward rather than beneficial. Moreover, it is precisely in the class of consumptives which Schrage indicates as suitable for hetol administration that cures are now being frequently effected without resource to the materia medica. We should note also that rapidly progressing and advanced (hopeless) cases should not be received in sanatoria, but in hospitals or homes for consumptives. In sanatoria only incipient and hopeful cases should be treated.

The "Pneumonia Commission" formed by Dr. Darlington of the New York Health Department, and officially known as "The Medical Commission for the Investigation of Acute Respiratory Diseases," has submitted a preliminary report of the utmost importance. Most of the papers comprising this report are to appear in the forthcoming issue of the *Journal of Experimental Medicine*, which is published under the auspices of the Rockefeller Institute for Medical Research. A valuable preface to the reports, signed by Dr. Darlington and Dr. Biggs outlines the causes and objects of the investigation. After stating that during the ten years ending in 1893 there has been a relative increase in mortality from acute respiratory diseases in New York City of 100 per cent., it is stated as unquestionable that the exciting cause in each of the diseases of this group is a micro-organism which requires for its growth and multiplication such conditions as are usually to be found only in the living body, outside of which these germs do not under natural conditions multiply to any extent. The infection must practically always be the result of communication from one human being to another. These diseases are, then, essentially communicable, and, therefore, they should, theoretically, at least, be preventable. The difficulties in the way of prevention arise largely from the wide distribution of the organisms. Streptococci, pneumococci, influenza bacilli, singly or combined, are present in almost all morbid conditions in the air passages of those living in large cities—also, indeed, to a very large extent in those of healthy urban inhabitants. The sanitary code for New York City at present includes the diseases under consideration in the class in which partly voluntary and partly compulsory notification is required. This provision of the Sanitary Code has, however, not yet been enforced. As a result of the preliminary report we are now considering, Commissioner Darlington and his eminent colleague consider that provision should now be made for enforcement. Notification of cases should be insisted upon. Dr. Biggs, in an "introductory note to studies on the pneumococcus under the auspices of the medical commission," states that lobar pneumonia was first studied in the following aspects: the occurrence and virulence of pneumococcus and organisms related to or resembling this, in the human mouth in health and disease; the evidence of variations in virulence of the pneumococcus; the occurrence of the pneumococcus in children's hospitals, homes and asylums, with a study of the bacteria of mouths before and after outbreaks of pneumonia; the vitality of the pneumococcus under various conditions; mouth disinfection. One of the earliest phases of research by the commission was the determination (for the identification of species) of the characters of the pneumococcus, to which end a comparative study was made of the coccus from cases of true lobar pneumonia and of that from normal mouths and throats hitherto generally assumed to be identical with the pneumococcus, also such a study of streptococci as would suffice for their separation from the pneumococci. The method adopted in these studies was, first, to secure the cooperation of noted bacteriologists in various places, who should make independent studies; and, second, to establish a central laboratory, or "clearing house" to which ultimately cultures from various independent workers should be

sent for comparative study under a single observer. In this way might light be thrown upon atypical forms, variations, etc., and greater precision achieved in determining the characters relied upon for identification.

Some important conclusions were reached in this preliminary report:

Drs. Wm. H. Park and A. W. Williams find that: Typical pneumococci were present during the winter months in the throat secretions of a large percentage of healthy individuals in both city and country. Since the virulence of pneumococci may be rapidly increased for a susceptible species of experimental animal by successive passage, and since pneumococci obtained from most pneumonias are more virulent from experimental animals than are those obtained from healthy individuals, therefore the virulence of pneumococci from cases of human infection is probably increased from human beings; hence cases of pneumonia should be considered to a certain degree as contagious and, since the virulence of the pneumococcus may be greatly increased and since the organism is very prevalent in normal sputum, all possible measures should be taken to restrict public expectoration. In general accord with these are the conclusions of Drs. W. T. Longcope and W. W. Fox, of Philadelphia.

Drs. C. Norris and A. M. Pappenheimer, of Bellevue, New York City, in "a study of pneumococci and allied organisms in human mouths and lungs after death," find that the cultural findings after death are no guide to the bacterial contents of the lungs during life, and that any deductions made from such findings are unreliable and deceptive. Any of the germs present in the mouth and passages and in many cases in the stomach contents may enter the lungs; and, if the conditions be suitable, increase in numbers during the time between death and the examination of the lungs.

To Prof. P. H. Hiss it seems "more than probable" that practically every one, at least in winter, when exposed to environmental conditions, such as exist in New York City, acts at some time or other as the host of organisms of the true pneumococcus type. No normal individual examined by him had had a recognized pneumococcus infection or "cold" within a recent time nor, with two well-marked exceptions, did any symptoms of infection develop in those whose mouths were found to contain pneumococci. These two exceptions strongly suggest the causative relation between pneumococci and some, at least, of the "common colds."

Prof. F. C. Wood, of the College of Physicians and Surgeons, New York City, concludes: (a) The life of the pneumococcus in moist sputum is of long duration—a fortnight—unless the material is exposed to direct sunlight. But as such sputum does not give off bacteria even when exposed to strong currents of air, it is innocuous except to those handling possibly contaminated clothes, bedding, etc. Under ordinary conditions, however, such sputum soon dries and may be powdered mechanically and be distributed in the air by sweeping and dusting. However, the organisms in the sputum do not remain long in suspension and are likely to die off under the action of light and desiccation. In sunlight or diffuse daylight the bacteria in such powder die within an hour.

and in about four hours in the dark. Ample illumination and ventilation and the avoidance of dry sweeping and dusting should therefore obviate much of this danger; (b) particles which a sufferer from pneumococcus infection coughs, sneezes, expectorates or "talks" out may contain virulent germs; may be inhaled by others or be deposited upon various articles in the room. However, whether suspended in the air or dried on surrounding objects, Hiss finds that they become harmless in a very short time (within an hour and a half), while many of the pneumococci in the spray perish in a few minutes, especially if exposed to strong light. Hiss believes therefore that the risk of infection from the pneumococcus is largely confined to those in direct contact with the patient whose excreta contain the organism.

Bread substitutes for diabetics are considered by Williamson (*Med. Chronicle*) an important subject for two reasons: because the bread usually prepared for diabetics often palls upon them and becomes distasteful to the prohibitive point; and because the insistence upon a proper diet is the one essential point in the treatment of this disease. Many patent bread substitutes are loaded with carbohydrates, many have a disagreeable taste, and most are very expensive. One should determine whether a given bread is practically free from starch and sugar; whether the taste is agreeable to the patient; whether the cost is proportionate to the patient's means; and, in the case of biscuits, whether they can be broken by the patient's teeth. Any diabetic bread should be tested for starch with iodine, and for sugar by fermentation. The most valuable substitutes are prepared from vegetable albumins—Roborat bread, aleuronat cakes, gluten bread; from nuts—almond or cocoanut cakes; from milk albumins—plasmon powder and biscuits, protene bread and biscuits, casaret bread and biscuits, kalari and pro-lacto biscuits. Williamson gives receipts for making at home bread, cakes and biscuits from many of these products. The cost can thus be lessened; and the baking can be done often so that the things to eat will be fresh and soft, and more suited to the teeth of diabetics, which are often carious.

The typhoid bacillus is of human origin, declares the New York State Health Department in its monthly bulletin. There is a misapprehension in many (even in medical) minds as regards milk being a medium in the spread of the fever. Suspicion need not be directed to the cows themselves; they will not give typhoid infected milk—though, of course, their health and the conditions under which they are kept and fed must be looked after. Typhoid fever may be communicated through the medium of milk from perfectly healthy cows, kept under the most sanitary conditions. The typhoid germs are of human origin. If they gain access to the milk it is after having been drawn from the animal yielding it; and the search for the source of infection of a milk-born epidemic must be prosecuted along these lines and no other.

A News Item.—A spectator of an accident on the elevated railway in this city declared, "I saw a physician, dressed in white, crawl under the wreckage and minister to the injured until he himself was caught by a falling beam. He was soon released, and continued his work." On this dreadful occasion men and women in all strata of life, doctors, priests, nurses, policemen, firemen, people living in the neighborhood, turned out to aid the injured and to care decently for the dead, with generous disregard of this own danger, acting purely upon

humane impulses. But in all this noble work, none was finer than that of the unassuming unknown worker in the uniform of an ambulance surgeon. The example of this young man should be known for an inspiration to all who take up his profession and calling.

Rapid Operating.—Dr. Wm. W. Keen, who is famous for the rapidity with which he operates, when complimented on this ability by a layman, told of an English surgeon who performed a delicate operation on a millionaire's wife. The bill was suited both to the nature of the operation and to the patient's pocketbook. The husband objected on the ground that the work took but ten minutes. "If that is your only objection," said the surgeon, "the next time any member of your family needs an operation I'll keep the patient under the knife for a couple of hours."

Salting new-born babies is a custom dwelt upon by the *Dundee Advertiser* as existing in some parts of Europe and Asia. The nurse takes the new-born infant and covers its entire skin with very fine salt, which is left for three hours or more, when the child is washed with warm water. In Asia Minor there is a tribe who salt their infants thus for twenty-four hours. The modern Greeks sprinkle salt on their babies. The practice is an ancient custom having its rise in superstition; it is believed that salting insures their children's health and strength and that it will keep evil spirits away from them. Among us nowadays the salt (brine) rub with a rough towel is good practice, except that we reserve it, not for infants, but for "children of a larger growth."

The care and feeding of premature infants.—Very few infants born before the twenty-seventh week of pregnancy survive, states Morse (*Am. Jour. Obst.*, May, '05). Being undeveloped the premature infant must receive much greater care than that born at full term. The former lose heat rapidly and cannot endure low temperatures or exposure. They offer very little resistance to infection. The first object to be attained is to keep the baby alive, the second to develop its organism to the stage normally reached at term. Incubators maintain an equable temperature; but they do not supply pure fresh warm air sufficiently. A padded crib or basket, which must be carefully protected from draughts, is a good substitute. Breast milk is the food to be preferred; otherwise modified cow's milk. The older the infant the better the prognosis; the latter is bad if the weight be under two, good if it be over four pounds. There may be no gain in weight for many weeks, even though development is progressing favorably.

Many diseased emigrants reach our shores, according to a report of Dr. Morris Fishberg, an agent of the Bureau of Immigration, who was sent abroad to investigate aliens afflicted with loathsome and contagious diseases. After a careful study of Eastern and Southern Europe he is compelled to report that steamship companies can prevent these undesirable classes from coming to the United States. He believes the steamship companies are doing a great deal now, but they have not reached the full limit of helpfulness. There are, it seems, a great many frauds practised, particularly in Italy, in getting immigrant passengers for steamships coming to this country; and one of the greatest evils is the employment of "runners," who go through the country and picture America to the peasants as "a land of milk and honey."

MISCELLANY

Allypine, a substitute of cocaine, has been discovered by two Berlin scientists. It is said to have all the virtues of the latter without any of its ill effects.

Culicide, a new mosquito killer, has been accepted by the Marine Hospital service. It is highly explosive and only skilled employees are allowed to handle it.

The disagreeable odor of **ichthyol**, a drug too valuable to be neglected on this account, can be concealed by the addition of oil of citronella, 20 minims to the ounce of ointment.—Ex.

The free drinking of water is opposed by Dr. Beerwald (delectable name) of Berlin. He declares that besides creating temporary disturbance, excessive water drinking occasions organic disorders. The heart and kidneys are particularly affected by the excess; frequently the vascular system is overcharged and the heart and kidneys overworked.

750,000 plague victims in five months is the report the *Lancet* presents from India. In the Punjab, the mortality for one week was 20,000. Such facts as these, considers the *New York Times*, certainly emphasize the neglected duty of the British Government to do what is exigently demanded to improve the sanitary condition of its Indian dependents.

The law on the bees was invoked by a candy firm of New York City, which requested the Health Department to disperse swarms of bees whose hives are owned by the A. I. Root Company, the largest bee owners in the world. The Health Board ordered the removal of these insects, who manifested their proverbial industry by eating the syrups of the candy maker and stinging his employees.

The Shambles of Science, a foolish book, has been withdrawn from circulation by its publisher with apologies. It is in this work that Mr. C. E. Coleridge exhibited his anti-vivisectionist proclivities, which inconvenienced him to the extent of a suit for libel; he was found guilty and fined one thousand dollars, many eminent London physicians testifying that the book contained false statements.

Artificial limbs, declares S. J. MacDonald, Jr., Editor of *The American Journal of Surgery*, were in evidence even before the beginning of the Christian era. In an interesting paper on the *History of Artificial Limbs* he presented the gradual evolution of such members from the seventeenth century up to the present day, when "An American artificial leg has almost perfectly the movements of a living leg."

The Local Treatment of Rabies.—Konradi (*Centralblatt für Bakteriologie*) believes that the development of rabies can be prevented by 1-1,000 bichloride solution applied to the site of inoculation. Application should be within from twelve to thirty minutes, but may be of value even after that time. The virulence of rabie virus is reduced by the antagonism of the organism. Individual susceptibility must be reckoned with in laboratory experiments, as in practice—a wise observation.

First Aid on Trains was discussed recently by the Erie Railway Surgeons' Association. It was requested by this road that some course of instruction for railway employees be instituted, based on "first aid to the injured," to minimize the fatality in railroad accidents. Emergency boxes were recommended to be placed on all

trains. Every railroad should have a special "first aid" department under the direction of a surgeon and employees in all departments should receive elemental instruction.

Is man poltrophagic or psomophagic? Or, in other words, is this biped in the habit of swallowing finely mascticated food like the horse, or food coarsely chewed as in the case of the dog? Higgins (*Lancet*, May 20, '05), concludes that man is designed to be of the poltrophagic variety and that if poltrophagia were universally practiced the daily quantity of food required to support life would be much less than the present more or less "bolting" habits of the average man have called for.

A People without physicians were the Tupis, a Brazilian tribe, according to *The Historian's History of the World*. Their life, which approached nature very closely, freed them from most of the diseases incident to civilization. They had, moreover, found a way of getting along without physicians. When they thought their relatives and friends had suffered too long they administered to them a well-aimed blow of a hammer on the head, in guise of a remedy, telling them it was better to die thus quickly than to suffer first only to die afterwards.

A school for the study of tropical medicine was recently suggested by Sir Patrick Manson, medical adviser to the British Colonial Office, in a speech before the Merchants' Association of San Francisco. Sir Patrick believed that yellow fever may yet become a source of annoyance in the changed conditions which will follow the completion of the Panama Canal, and emphasized the futility of what now passes as quarantine either in yellow fever or the bubonic plague. San Francisco poses an advantage over London for the study of tropical diseases in that it has in the population many Chinese, Japanese, Filipinos and Hawaiians.

Hygiene is twofold, public and personal (*Scientific American*). The former deals chiefly with the human mechanism and its operation, the latter with the environment of that mechanism (sanitation). One person can now no longer safely undertake to deal with the whole sphere of hygiene. The physician and the physiologist must in future leave to the architect and the sanitary engineer such subjects as housing, heating and ventilation, water supply and sewerage, precisely as the sanitary engineer has never presumed to deal with foods and feeding, vaccines and antitoxins, exercise, sleep and rest. The former subjects deal chiefly with the control of the environment, the latter with that of the individual, and sanitation and hygiene must henceforward be regarded as separate hemispheres of the science of health.

Professional courtesy was somewhat strained, states the *New York Medical Journal*, in the case of an Italian physician who was arraigned on a charge of furnishing a death certificate in the case of a child he had never seen, who had died under the care of an unqualified quack. On the physician's counsel pleading in extenuation that such was the general practice in the region where the doctor lived, the latter escaped with a fine of seventy-five dollars instead of a sentence of nine months, which the judge had first thought fit to impose upon him. The friendly practice here referred to were one much better honored in the breach than in the observance.

THE DUALITY OF ALL PHYSICAL PHENOMENA.

BY F. B. BRUBAKER, M.D. MIFFLINBURG, PA.

WHETHER is interested in the closer study of plant life, cannot but have been struck with the curious appearance presented by various representatives thereof and peculiar to many localities; indeed being widespread, of which *Linaria*, *Viola*, *Salvia*, etc., are types, and whose distinctive feature lies in the fact that they produce two kinds of flowers, the one ordinary open, and the other minute and closed, with oft-times and by no means, rare cases of intermediate flowers on the same stalk. The closed flowers having been named by Dr. Kuhn cleistogamic, and which are remarkable from the fact that they are always closed, so that they resemble buds; their petals being rudimentary or quite aborted; the stamens often reduced in number, with the anther of small size and containing few pollen grains which have thin, transparent coats, while the pistil is much reduced in size, with the stigma in many cases hardly at all developed. But it is almost superfluous to describe cleistogamic flowers at this late date, for even before the time of Linnaeus naturalists were wont to describe and speculate on their peculiar form, as likewise, and with no less ardor as to the immediate cause thereof. On the one hand, it being asserted that they owe their structure primarily to the arrested development of perfect flowers, because of the rudimentary petal being larger than the others, or from the vestige of a spur, as likewise on the same plant of a series of gradations between the cleistogamic and perfect flowers, while on the other hand, we have the cases of parts being especially modified so as to aid in the self-fertilization of the flowers, or as a protection to the pollen, for instance, the hook-shaped pistil in *Viola*, by which the stigma is brought close to the fertile anthers, or the rudimentary corolla of *specularia*, which is modified into a perfectly closed tympanum, as is also the sheath of monochoria, which is modified into a closed sack, and likewise the excessively thin coats of the pollen grains, while the degree to which many of the most important organs in these so-called degraded flowers have been reduced or even wholly obliterated is one of the most remarkable peculiarities confronting the naturalist of all ages, in some cases only a single anther is left and this contains but few pollen grains of diminished size; in other cases the stigma has disappeared, leaving a simple open passage into the ovary, it being also interesting to note the complete loss of trifling parts in the structure or function of certain parts, which though of service to the perfect flowers, are of none to the cleistogamic; the collecting hairs on the pistil of *Specularia*, the glands on the calyx of the *malpighiaceae*, the nectar secreting appendages to the lower stamens of *Viola*, the secretion of nectar by other parts, the emission of a sweet odor, and even the elasticity of the valves in the buried capsules of *Viola odorata*.

If now we should pause to inquire as to the cause, or reason of all this, we must of necessity admit that much of a natural, visible phenomena is apparent, whereby to explain the same, for instance, it has been noticed that the flowers of *Lysimachia*,—*Vulgaris*, if fully exposed to the sun expand properly; while those growing in shady ditches have smaller corollas which open only slightly; and what is even more wonderful, that these two forms graduate into each other in inter-

mediate stations, and Herr Bouche has shown that both temperature and the amount of light affect the size of the corolla and gives measurements showing that with some plants the corolla is diminished by the increasing cold and darkness of the changing season, whilst with others it is diminished by the increasing heat and light. It is likewise known and given as substantive evidence, that various plants belonging to this class either do not produce their cleistogamic flowers under certain conditions; or else produce them to the complete exclusion of the perfect ones. Thus some species do not produce cleistogamic flowers when growing in the lowlands or in certain districts. Again certain cleistogamic flowers are produced by some species late and by others early in the season, and this agrees with the view that the first step towards their development is due to climate. But to my mind, a plant that bears on its flower stalk cleistogamic and open flowers presents to us a duality of structure. What do I mean by this, and how will I explain it? By the duality of structure is to be understood that safeguard of nature, which to ensure the perpetuation of her animate forms, she throws about each a dual protection; first manifest as sexual, later as structural or form, and lastly as function. Let me explain:—Every one will admit that close inbreeding is directly degenerate, yet no one will deny that in a state of nature, self-fertilization held first place and was indeed necessary owing to the primitive condition of form and the uncertain geologic state which rendered pairing difficult and oft-times impossible, and yet conjointly, no one can deny that the two sexual states or conditions present a duality of form and function coincident with life itself. Fritz Muller states that in southern Brazil there is a grass in which the sheath of the uppermost leaf, half a metre in length, envelops the whole panicle; and this sheath never opens until the self-fertilized seeds are ripe; however, on the roadside some plants were cut down whilst the cleistogamic panicles were developing; and these plants afterwards produced free or unenclosed panicles of small size, bearing perfect flowers. Again in the Indian species of *Viola-Nana*, which were transported to England, only cleistogamic flowers were produced during the whole of several successive summers; and the same plant was acting similarly in Calcutta, but in its native site or habitat it was producing both closed and open flowers. Now what does this fact teach? It teaches that at an early period, when life first appeared upon the globe, and when sex was as yet undivided (for every one knows that cleistogamic flowers are self-fertile), nature ensured the perpetuation of her forms by just such means, that is, self-fertilization plus a closed or protected structure; but I shall not pause to prove this, easy as it would be, but shall immediately pass to a consideration of the Protozoa.

The Protozoa, as we all know, being the lowest form of animal life, and one-celled organisms, recognizing at the same time a parallel group of unicellular plants. Theoretically, there is no difficulty in separating these two groups. There is no doubt but that organisms present themselves to us in two great series or groups, each starting from simple unicellular forms. The one series, the plants, can take up the carbon, oxygen and nitrogen necessary to build up their growing proto-

plasm from mineral compounds which constitute the resting stage of those elements. Plants can take their nitrogen in the form of ammonia, or in the form of nitrates, and their carbon in the form of carbonic acid, accordingly, they require no mouths, no digestive tract or apparatus; their food being soluble in water and diffusible, they absorb at all or many points of their surface, while on the other hand, the series of organisms which we distinguish as animals cannot take the nitrogen necessary to build up their protoplasm in a lower state of combination than it presents itself in the class of compounds known as albumens, nor can they take carbon in a lower state of combination than it presents when united with hydrogen or with hydrogen or oxygen to form fat, sugar and starch. Albumens and fats are not soluble in water and diffusible, and, therefore, must be seized by the animal in the condition of more or less solid particles and by chemical processes superinduced in the living protoplasm of the animal; by the contact of these particles they are acted on, chemically modified, and rendered diffusible. Thus we see that an examination of the lowest forms of life in each kingdom resolves itself into nutrition, and the distinctive line on which this is accomplished being that of demarcation between the two. The Protozoa then, are essentially unicellular animals. The individual or person in this grade of the animal kingdom is a single cell; and although we find Protozoa which consist of aggregates of such cells and are entitled to be called multicellular, yet an examination of the details of structure of these cell aggregates and of their life history establishes the fact that the cohesion of the cells in these instances is not an essential feature of the life of such multicellular Protozoa, but a secondary and nonessential arrangement, like the budded persons forming, when coherent to one another undifferentiated colonies among the polyps and corals, the coherent cells of a compound Protozoon can be separated from one another and still live independently; their cohesion having no economic significance, each cell being the exact counterpart of its neighbor—there is no communication of life, no distribution of function among special groups of the associated cells and no corresponding differentiation of structure. As a contrast to this we find even in the simplest Enterozoa that the cells are functionally and structurally distinguishable into two groups, viz.:—those which line the enteron or digestive cavity, and those which form the outer body wall, and the cells of these two layers are not interchangeable, they are fundamentally different in properties and structure from one another. The individual Enterozoon is not a single cell; it is an aggregate of a higher order consisting essentially of a digestive cavity around which two layers of cells are deposited. The individual Protozoon cell is a single cell; a number of these individuals may, as the result of the process of fission, remain in contact with one another; but the compound individual which they thus originate has not a strong character. The constituent cells are still the more important individualities; they never become differentiated and grouped in distinct layers differing from one another in properties and structure; they never become subordinated to the individuality of the aggregate produced by their cohesion, hence we are justified in calling even these exceptionally aggregated

Protozoon, unicellular, whose distinctive character lies in the fact that they remain so, that whether existing as isolated organisms, or as constituents of the tissues of plants or animals, they separate at once into two distinct individualities which move away from one another and are thenceforward strangers. Now on the theory of higher life as we know it to-day; being sexually distinct, how is it that these unicellular organisms live and perpetuate their kind, it having been proved that one of the fundamental properties of protoplasm is reproduction? The Protozoon cell follows the same course as tissue cells in that by assimilation of nutriment its protoplasm increases in volume and reaches a certain bulk when its cohesion fails and the viscid droplet divides into two. Now the coefficient of cohesion varies in different genera and species, but sooner or later the disrupting force leads to division and thus to multiplication of individuals or reproduction. Here then we have a physiologic unit, a living germ which absorbs within itself nutriment and which grows, and finally, which reproduces itself. And this we have called protoplasmic. But whilst simple binary division is, almost without exception, a chief method of reproduction among the Protozoa, and is also very usual, it has been found that under given circumstances or conditions, the Protozoon breaks up rapidly into many; from ten to a hundred or more little pieces, each of which leads an independent life and grows to the form and size of its parent. Then again to multiply by binary division, some of the products of which division will in their turn divide into small fragments.

These small fragments are called spores, and it has been noticed that before any distinct mass of protoplasm break up into spores, it has been preceded by the formation of a cyst. Now it matters not whether the process of simple binary division goes on for a hundred or for a thousand years, it does not progress at least in so far as man is able to discern (we speak now of the animal), but protoplasm can build higher than this, for it can build to the majestic oak, but still it is protoplasmic, but when one Protozoon cell approaches another Protozoon cell, when individuals come together and fuse into one mass before breaking up into spores, I call it the beginning of a rising duality, the former protoplasmic, and the latter nervous. But spore formation is not necessarily preceded by conjugation, neither is conjugation always followed by spore formation. Among the mycetozoa, the young individuals produced from spores, conjugate at a very early period of growth in numbers and form plasmodia, and after a considerable interval of feeding and growth the formation of spores takes place. But still more remarkable is the fact observed among the ciliata, where two individuals conjugate and after a brief fusion and mixture of their respective protoplasm separate, neither individual (at least, as far as certain genera are concerned) breaking up into spores but simply resuming the process of growth and recurrent binary division with increased vigor, and this again bears truthfully upon our argument; that even protoplasm itself presents to us a beginning duality of structure and function; for there certainly is no marked line to be drawn between protoplasmic reproduction by simple fission and reproduction by spore formation; both being a more or less complete dividing of the present protoplasm into separate masses.

It is then apparent that we are here face to face with a great underlying principle, viz.:—That protoplasm shows in its very nature a dual structure, for while on the one hand, by conjugation of simple cells are produced by simple fission, or by spore formation; cells, which in their entirety build to higher plant life, or whether on the other, as in the beginning animal tree they build to perfection here it matters not, seeing that to the one is added locomotion and the other higher property, entailing the birth of a nervous system which ultimately governs, and if on the side of protoplasm we believe that simple fission governs the one tree, or spore formation the other; we must pause before the greater problem that each may determine to the exclusion of the other in this beginning life, its start; that each may suffice, that either may govern, we must, in our humility admit; that nature has here set forth a duality to subserve and be not lost, and that follows her forever.

The distinctive feature then of a Protozoan cell being that it is a simple mass of protoplasm which is endowed with motion, respire and excretes, is capable of chemical metamorphosis, grows and reproduces its kind and presents as an underlying principle the nucleus of a beginning duality, that is, capable of resolving itself into two structures, two functions, etc., of which it gives evidence; but never actually reaches, for within itself the Protozoan cell is devoid of the slightest vestige of a nervous system; and what one cell does, all do, there being no specialty of structure, no division of labor and consequently, to all visible tests, no tangible individuality, save one, viz.:—that of sex; for whilst in the binary cell division of the Protozoa, the two products are usually complete in structure at the period of separation, spores and spore-buds are not only of small size, and therefore, subject to growth before attaining the likeness of the parent, but they are also very often of simple and incomplete structure, the gap in this respect, between the young spore and its parent necessarily varies, according to the complexity of the parental form. It having been noted then, that the two protoplasmic individuals come together, conjugate, and separate, it would be but natural to suppose that resulting therefrom, and proceeding a step higher in the animal scale we should find manifest the evidence of the same, and as we know for the entire organic world, no two individuals being exactly alike and believing the same to be necessarily true of the Protozoa, no surprise need be expressed anticipating and ultimately finding that no two cells can conjugate without the offspring partaking of the character of both. This then becomes manifest as we approach the next step in the scale, a slightly more complex individual; as the hydra or fresh water polyp. The polyp is, in fact, a group or crowd of amoeba-like cells, so associated together that not only may the material of each cell, within limits, be interchanged with that of neighboring cells, but also the dynamic events taking place in one cell and leading to exhibitions of energy, may be similarly communicated to neighboring cells also within limits. Now these cells are arranged in a particular way to form the walls of a tube, of which the body of the hydra practically consists, forming two layers in apposition, the one an internal layer and called the endoderm, and which lines the tube, the other an external

layer, and called the ectoderm, and forming the outside of the tube, and putting aside minor details of unimportance, the difference in structure and function observable in the organism are confined to differences between the ectoderm on the one hand, all the constituent cells of which are practically alike, and the endoderm on the other, all the cells of which are also alike. Now the protoplasm which goes to form outer or ectodermic layer of cells exhibit in a marked degree the phenomena of irritability and contractility, whereas in the protoplasm of the inner or endodermic cells, this is held largely in abeyance, and prominence is given to that property likewise belonging to protoplasm, viz.:—assimilation; and thus it is seen that while protoplasm is capable of various phenomena, as we saw in the Protozoa, yet, as we go a step higher, the relative position of the same determines the preponderance of action, for if a hydra is turned inside out, a reversion of the functions here stated takes place. Now it needs but little argument to convince the most skeptical that the one great function to which all organic organization tends, is nutrition, all else being subservient thereto and accessory, that whether we behold the hydra on the one side in which one-half of the animal's body is given over to the nutrition of itself and the remaining half; or whether on the other we behold man, the highest type, nutrition still holds first place, and it is here that I would draw the reader's attention prominently to the second step in the duality of all physical phenomena, viz.:—a double structure, an inner, assimilative, and an outer, governing, the one protoplasmic, the other nervous. In the hydra each endoderm cell receives some of the food bodily into itself; there to elaborate it into prepared nutritive material. This, as we have seen in the Protozoa, is one of the fundamental properties of protoplasm and in unicellular organisms subserves its every need; a step higher, and we find this same fact or process at work, plus a surplus preparation which oozes out to the ectodermic cells, the replenishment of whose cells or protoplasm is thereby effected with a saving of labor. This transfer of nutritive material from the endodermic to the ectodermic cells being by a process of absorption or osmosis. Now each of these systems, that is, the component cells taken together, constitutes what is known as a tissue. The ectoderm cells together constituting a tissue whose function in the modern sense of the term is movement and feeling. While the endoderm cells constitute a second whose function is assimilation, and the phenomena of the whole constitute a result from the concurrent working of these two functions, which is life itself. The movements of the hydra are brought about by changes of form of the ectoderm cells; especially the tail-like processes of these cells, which arranged as a longitudinal wrapping of the tubular body draw it together when they shorten, and lengthen it out when they elongate, and it is by the alternate lengthening and shortening of its body and of the several parts of its body that the hydra changes its form and moves from place to place. Now, inaugurating these changes of form by the products of contractility, are the more hidden changes of irritability; these also belonging to the ectoderm cells and giving us a first view of primitive promise of a beginning nervous system, this function of irritability traveling readily from cell to cell, so that a disturbance originat-

ing in one cell either from some extrinsic cause, such as contact with a foreign body, or from intrinsic events, may sweep from cell to cell over the surface of the whole body; but the endoderm cells have not wholly lost the same property, though far less striking, for these cells are almost wholly taken up in the chemical work of digesting and assimilating the food received into the cavity, the lining of which they form. But higher in the scale of organic life these same cells lose this property entirely, and henceforward and from the hydra step by step higher, these two systems become more and more distinct farther and farther apart, a duality of structure and function. We have found that one of the fundamental properties of protoplasm is assimilation, that the Protozoa accomplishes in diminutive what is accomplished by the highest type of animal; and no more is accomplished the one from the other, but by the grouping of cells to form tissue, and as tissue in itself becomes a physiologic laborer, that is, that the ectodermic cells are no longer taking part in the primary function of assimilation or the preparation of food, but yet requiring nourishment no less than the cells actively engaged therein, therefore, it becomes apparent that, by reason of the process of absorption cell from cell, which in the ultimate amounts to osmosis is an everywhere present necessity for the preservation of the life of the organism and its continuous growth. Now, as we go higher in the animal scale, we find that the preparation of food becomes a far more complicated question, the endodermic sheet of the alimentary canal eventually becoming folded and arranged into organs called glands, with the mechanical advantage that a large amount of surface is secured within a small bulk; and the constituent endodermic cells of these glands pour out, or secrete, divers fluids into the cavity of the canal, so that much preliminary preparation of digestion of the food takes place before the food really enters the body, a type of complex structure being here presented and others, as the liver, pancreas, etc., being developed, the higher we go, all being connected, and together subserving the great end of food preparation and absorption, it becomes very obvious that the primitive process of absorption of cell from cell, by a process of osmosis, no longer subserves a nutritive end; and so the wide separation in space of the masses of differentiated cells constituting tissues necessitates the introduction of mechanical contrivances for the carriage of material from place to place. Now as we have seen in the simple hydra the nutritive material can permeate the whole body by simply oozing from cell to cell, but in the higher animal a hydraulic system for the distribution of nutritive material is introduced; the evolution of which becomes a most interesting study, fluid being distributed in ceaseless flow all over the body by a mechanical arrangement consisting of a pump with branching tubes, worked on mechanical principles, and capable of being imitated artificially, save that the power that drives the machine is the energy set free by living muscle. Now as this circulating fluid or blood rushes past the endoderm cells which have gorged themselves with the rich contents of the alimentary canal, it receives from them some of the material which they have absorbed and elaborated and carries this nutritive supply to all parts of the body; similarly it carries away those broken fragments of simpler stuffs into which

the complex protoplasm, wherever it exists, is forever splitting up and bears them back to differentiated endoderm and other cells, whose work becomes, so to speak, inverted, since their activity is directed to casting things out of the body, instead of receiving things into it, and lastly by a special arrangement, by a peculiar property of those corpuscles which make blood red, this circulating material at one and the same time carries to each corner of the body not only the nutritive material required for building up protoplasm, but also the oxygen by which the constructed protoplasm may suffer oxidation, and in being oxidized set free that energy, the manifestation of which, is the token of life. Insofar then is the animal body protoplasmic, as indeed, is the whole series of that other and no less noble structure, the vegetable, but the vegetable never rises above this; from the lowest unicellular plants, even to the oak, it is undeniably protoplasmic, and nourished, as it were, by a similar system of nutritive fluid, whose heart power finds its counterpart in root pressure and whose fibro-vascular bundles and osmic capacity is everywhere tending to a like end. But for the animal it is different, for conjointly with a visible protoplasmic entity and running parallel with the same and born from out the system of ectoplasmic cells comes the nervous, which in the animal of higher life becomes the higher, because it governs—for who will deny that the thing governing is not in all cases higher than the thing governed?—but we will not on this occasion lend ourselves to that strange Spencerian doctrine which says: that contractility and irritability is the germ nucleus of nerves, a definition which savors too strongly of spontaneous generation, for while the foregoing may serve, and no doubt do, the awakening or determining factors in the evolution of nervous tissue or fibre, but that they are the cause of the nerve itself being born, we seriously doubt, it is not necessary, neither do we believe that protoplasm admits of so fine discrimination as visible or tangible phenomena, else why should nerve force elude our most searching inquiry? Suffice it to say that from without the ectoderm is born the nerve. The same being outer, but sinking deeper with each acquisition of structure and force and subserving the great quality of protection. In the Protozoa we find no nerves. But the Scyphomedusoid forms of the hydrozoa show nerve fibres and ganglion cells in the subumbrella and around the tentaculo cysts, while in the Hydromedusoid forms the nerve ganglion cells form a ring around the margin of the disk. In the simplest forms of animals the protoplasmic cell is the seat of sensation and of motion; but as the contractile or muscular layers become more marked sensation is delegated to the cells of the ectoderm or outer layer of the body. Now as portions of the sensory layer become of higher value to the organism their protection is accomplished by some of the sensory cells sinking into the body of the organism, so as to be covered by less important structures, the portions originally of the surface thus differentiated and protected, become ganglia, and processes pass from them on the one hand to cells at the periphery, so that they still may be influenced by external energies, and on the other, to the contractile parts of the organism, by which movement is accomplished; still higher in the scale of life the ganglia is connected by inter-nucial fibres, and the plan of the primitive nervous system bears a relation to the general type of structure of

the animal. Thus in radiate animals the gangliated cords show a radiated arrangement and when the animal form is bilateral and symmetrical, the nervous arrangements are on the same type, the ganglia specially connected with the rudimentary organs of sense attain a size and importance proportionate to the development of the sense organs, and the nerves of the sense organs are chiefly connected with the supracæsophageal ganglia, showing that not only here is to be found the primitive promise of future brain, but likewise, and what concerns us most in the present instance, being that nerve evolution was first nutritional, or rather evolved to subserve this all-important end, by such means as best suited the animal under consideration, and which finds its highest type in the vascular control of the nutritive stream in man (the blood), by means of the greatest of all systems, viz.:—the vaso-motor. Now when the body of the animal becomes more complicated by the development of similar segments, we find a reduplication (we are now, of course, speaking of invertebrates) of the supracæsophageal ganglion, and a ventral chain of ganglia is formed, a pair for each segment, the individual ganglion connected by commissures. Such an arrangement being found in the ringed worms and the arthropods. The next step being a fusion of the ganglia into masses, according to the size and importance of the part of the body to be innervated.

Passing from this rather hasty review of the gangliated system of invertebrates to man, we find little at variance in the primitive structure here described, and the highest type to which organic evolution has given birth. No more interesting study is to be found than a perusal of the graded, and at all times, rhythmic steps intervening between the two, but we are not here given to comparison, save as it reveals the great problem of duality, and yet remembering that from the organic architectural simple, to the organic architectural complex, represents all there is of visible organic phenomena, the distinctive mark of vertebrates being the cerebro-spinal axis with, or in contradistinction to the ganglionic of invertebrates, renders consideration of the embryological and morphological aspect of the subject imperative; representing as it does the history, or story of all higher life to be seen in simple and complex form. The cerebro-spinal axis begins in the embryo as a tube of nervous matter produced by an infolding of the epiblast or outermost embryonic layer, the tube widens at its anterior end and by constrictions in its wall, three primary vesicles are formed, which afterwards become the anterior, middle and posterior parts of the brain. In the fully developed condition the cavity of the tube remains as the central canal of the spinal cord, and the ventricles of the brain and cord, whilst the various parts of the brain and cord are formed by thickenings in its walls. A protrusion from the anterior cerebral vesicle, at first sight single, but afterwards divided by a median cleft and becomes the rudiment of the cerebral hemispheres, the cavity remaining in the adult condition as the lateral ventricle on each side. From each cerebral vesicle another hollow process protrudes which constitutes the olfactory lobe and thus by thickening, etc., from the outer and under walls is gradually formed all that becomes the adult human brain. Indeed the evolution throughout the animal kingdom shows a graduated series of increasing complication proceeding

out of the same fundamental type, so that the forms of brain found permanently in fishes, amphibians, reptiles, birds, and the lower mammals are but repetitions of the stages of the embryonic development of the brain of man. If, from organic life on the globe, and following it at all points, from the lowest to the highest, there has been born and nurtured a great and as yet little understood duality, the one protoplasmic, and the other nervous, then surely, in so high a structure as man, must be evident the dual forces evolved and undoubtedly playing and subserving their highest end, and if they be not demonstrable, if they be not everywhere present, in this, the highest structure to which organic evolution has given birth, then are our deductions vain. Nutrition, being the graded steps from water laden with inorganic compounds in the vegetable, to water laden with organic compounds in man, and nutrition being life, it follows as a self-evident corollary that whatsoever governs nutrition, whatsoever controls the same must be higher even than nutrition itself; and this the nervous system accomplishes, accomplishes by its control of vascularity and by way of the vaso-motor nerves.

Now, if, as we have assumed, and evolved from out the lowest forms of life is born a structure which eventually becomes dual, if, as we find it in higher animal life, with man as a type of structure, a duality of form and function is manifest, one of which we have called protoplasmic, and the other nervous, and if within the body of man there continually play two forces—the one structural and the other functional, and resulting from a protoplasmic force and the other from a nervous force, then should these two forces fail to show forth visible and tangible phenomena, would our system fail. But first of all, I would draw the reader's attention to the fact that all action, all force, is attended with the evolution of heat; I care not whether it be inorganic, as the fall of one stone upon another, or whether it be organic, as in man (with metabolism as a type), all motion, all chemical change, all force or forces, are attended with the evolution of heat, save one, and that is nervous, and had I no other argument with which to present my deductions, it seems to me sufficient that this one fact, this one phenomena, and its everywhere presence, must suffice. When one body strikes another, a certain heat equivalent is overcome and manifest, as in the circulation of the blood which eventually resolves itself into just so much heat; and the heat produced is always the exact measure of the force expended in overcoming the friction or resistance offered. The heat being simply a primitive force in another form. So with percussion, so with compression and especially combustion. Even growth itself having a certain heat equivalent, and I would repeat that all action, all force, be it organic or inorganic, save one, viz.:—nervous, is attended by the evolution of heat. Heat, then, being the legitimate or necessary outcome of all those forces within the body and commonly known as metabolism, the same being the sum total of all protoplasmic life and which reaches its highest evolutionary state or condition in man and the higher animals, and all finer tests and experiments having positively failed to demonstrate or detect the same in any form of nervous action, it becomes at once apparent that the function of nerves, is, and necessarily must be, a thing in itself, separate and distinct from protoplasmic force which evolves heat, and to which the nutritional stream (the

blood) belongs. And this we find evidenced in the so-called nutritional or Wallerian theory, which demonstrates that in nerve section, degeneration follows the course of the nerve current. Hence, if a sensory nerve is cut degeneration will start at the point of section and travel towards the spine, while if a motor nerve be severed the degeneration will extend from the point of section to the periphery. But that the nutrition of the nerve is a thing separate and apart from this is positively proven in the fact that in the same division if repair is about to take place, as in cases where nerve suture has been practiced, and even where nerves have been resected for the cure of pain or what not, growth takes place from both ends, regardless of its being sensory or motor; and where growth is there is nutrition, for growth without nutrition is an impossibility. Furthermore, where it becomes a necessity to introduce nervous tissue, be it human or of higher animal origin, to preserve the continuity of nerves, it matters not whether the supply be of sensory, motor, or mixed character, the end attained (if attained at all) is always the same, viz.:—That of a restoration of function of the nerve repaired. And thus it becomes apparent that while as in all other tissue, nerves are dependent for their protoplasmic repair upon the blood, yet the force generated and passing continuously or interruptedly to and fro, is a thing in itself separate and distinct. Therefore, within the body of man we behold two forces. AND the one we have called protoplasmic, and the other we have called nervous. And of these two the nervous is higher, because it controls.

The surgical treatment of Tubercular Cervical Lymph Nodes is well summarized by Dowd (*Annals of Surgery*, July, 1905). These lesions are apparently due to infection received from the fauces, pharynx or nasal mucous membrane in the great majority of cases. The disease tends to extend by means of the lymph channels to the lungs and other internal organs. Such an extension occurs in perhaps one-half of the cases in which the nodes are not removed. Apart from the tendency to extension the disease is tedious, causing discomfort and disability, and having disfiguring scars. Thorough exsection of the diseased nodes has given better results than any other method of treatment. Operation records justify the conclusion that in favorable cases the operation is safe, leaves behind no unsightly scars, confines the patient to bed only two or three days, while a dressing or bandage is required from but one to three weeks, there is no recurrence in three-fourths of the cases and ultimate recovery in 90 per cent., while in the less favorable cases the operation is safe, there is less disfigurement from scars than accompanies discharging sinuses with freedom from recurrence in about 55 per cent. of cases and ultimate cure in 75 per cent. Transverse incision either in the neck creases, or parallel to them are recommended—care being taken to cut the fibres of the facial nerve. A vertical incision back of the hair line is sometimes indicated. Extensive incisions are necessary in advanced cases. The normal structures of the neck should be preserved. We should here note the wonderful improvement and frequent cures which are reported from seaside hospitals for tuberculous children, the need of operation being in many cases obviated.

"RACE SUICIDE."

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

TO be or not to be?—that's the question," more lately revived for thought of American people. President Roosevelt has put himself on popular record among many actual mothers by his oft-quoted apothegm: "The most important, the most honorable and desirable task which can be set any woman is to be a good and wise mother." Allow me to here complete the synthesis of his notable premise:—is to be a good and wise mother of good and wise children. Both in the family and the Commonwealth sense, it is remorsefully unfortunate to be the mother of an imbecile fool, a perverse reprobate, or a chronic criminal. There are excessive human outputs into communities—and the ratio is markedly increasing in these over strenuous money-lifting days—of men and women who tarnish the record of life, who disparage the world and the paternity that gave them existence.

Motherhood is entitled to the premium and the dividends of maternal compensations. Motherhood means and should mean a tremendous deal more than the quality of being "good and wise" mothers. The physiological and mental output of children is immensely more important than is the numerical multiplicity of family progeny. To be the good mother of a talented and capable and healthy child, who is morally well-balanced, who will fill some sphere of usefulness in the world and do honor to his or her birth,—to be such a mother, is to fill the grandest mission permitted to womanhood. She has of her own flesh and blood contributed to the world's stupendous progress and to the spiritual Kingdom of God. She is blessed of the earth, for her womb nurtured and delivered to the world a messenger of noble thoughts and useful deeds.

But perhaps the saddest experience on earth is that of a good and worthy mother who brings into the world a child of idiotic mind, of degenerate morals, of imbecile status, incapable of normal development. In my mind's eye just now are mirrored three living cases of that grade. One a talented minister's wife, mother of an epileptic idiotic son now fifteen years of age, whose earthly advance has grown more troublous and doubtful with each succeeding year, and whose care and supervision have long since overcome the bounds of the home love and safety. The next case is that of an unusually brilliant, kind-hearted, energetic mother, whose only child, a son, with arrested mental development, now twenty-one years of age, with an intellect corresponding to that of a child of six years old, though under the care and training of one of the best institutions in this country. The third good mother—a very sensitive and intelligent wife of a physician. The son reached his majority ten years ago, but is yet the shuffling imbecile pervert that so many years of parental anxiety and attention have failed to palliate and redeem. These few instances are cited only as illustrative of how the unhappy burden of maternal travail can beset even the good mother and redouble itself every waking hour, night and day, of her undesirable and most regrettable task in life. Better that such women had never become mothers at all, for, as already predicated above, motherhood merits the premium and the dividends of maternal compensations for the sacred function of sharing in the creative impetus

of God in populating the earth. But so far as concerns benefit to the world, every American woman, though ever so good a mother, who brings into the world progeny with degenerate or abnormal rationality has inadvertently, and, in general, undeservedly failed in desire and honor, and accomplished worse than to contribute a personal share toward race suicide by the bearing of such children.

The ambition-mad Napoleon Bonaparte craved the women of France to bear children—that he might have recruits for his invading armies, that he might lead brave hearts to repulse resisting foes, that he might victoriously sacrifice human lives to pillage cities and demolish thrones, and to rear for himself and his quite impossible royal heir a deathless empire of tyranny over Europe. In this gigantic ambition Napoleon would have spurned every mother's offering of a son who would prove useless drift on the march of national destiny. It is not the number of children that are needed to dignify and make invincible a people, but the grade of vigor, the brand of intellectuality, the sterling morale of manhood and womanhood.

The comparative infertility of modern American women, as rated by the prolific old-fashioned output of children two or three generations ago, is arousing increased attention of social doctrinaires on printed page and on forensic platform. The arguments or inductions advanced, even by medical writers and talkers, are materially veiled with the mufflers of conjectural impediments of barrenness as effecting the reduction in the modern woman's fertility, as cause of the very observable decline in human reproduction, and threatening family extinction among the better educated and more intelligent classes of our population. Each debater naturally disposes himself or herself to recognize the blight of the race in the light or the shadow of some studied hobby, the influences of which tend to restrict sexual fruitfulness and reduce the availability of woman for the functions of successful maternity. The ethics of the audience, of the time and place, or of the occasion of verbal deliverance, judiciously gauges the suggestive ventures of coysome opinion, and the veiled facts are as scrupulously coquetted with around the brushwood of plain truth as it is possible for mistaken or misleading courtesy to masquerade. The chronic higglers about indiscretions of American diet, with thought objectively trained on the superior virtues of plainer foods, simpler habits of life, normal digestion and sexual virility of our forefather and foremother generations are wont to allege that incompatible cuisine compounds have induced dyspeptic temperament and hyperbolic nerves which rob woman of normal desire, and constitutionally disqualify her for the fruitful welcome of maternity. Then airily come the distinguished lady conventionists of dress reforms. Learnedly they dilate on the demerits of Parisian fashion plates, on the social and physical degeneration of womankind, and the increase of sexual barrenness, because of the heart-cramping and bosom-flattening corset habit; the waist constriction and pelvic impact of strangling skirt-bands; the spine wrenching and womb tilting results of fashionably high-heeled shoes; and altogether demonstrate how American womanhood is withering at the roots, is succumbing to the confirmed infliction of daily ills, is postulating toward irrepara-

ble invalidism, is slowly but assuredly divesting herself of the Cestus of sexual functions and honored motherhood. Then there comes along the Gospel wagon of moral reformers, zealously trumpeting wisdom's warning against the vagrancy of intersocial vices, against promiscuous catering to the debaucheries of sacred and ideal human passions, and dispersing the natural incentives to holy union of the sexes in the mutual bonds of legal marriage,—and thus repress due appreciation for the family circles of homes to inhabit the land and to recruit the normal stamina of the Nation.

Having thus sketchily skirted the variegated campus of this parental enigma of native Americanism,—grounds coyly ventured on by reform specialists,—we must directly approach the desecrated temple of this portentous problem of human life. The revolting causes of race suicide are not dyspeptic minds and nerves, are not cuisine distractions of functions, are not deforming wrench of smothering corsets and tilting shoe heels—unsanitary and vicious as are their physical effects on the human frame and vitality—they are not the radical blight causing sexual barrenness of womanhood. The cause of race elimination among the educated better class of American families is the growing disinclination to the production of children, the malevolent brigandage against the existence of children, the despotic assaults upon the rights of children to be and to live and to monopolize a share of human interest and worldly profits. What are the proofs that boldly gaze one out of countenance and pillage faith of the sanctity of life's precious souvenirs to life?

In passing, we note an imposing concourse of women, mostly young women, drifting into the sphere of self-dependence on lines of business vocations, which enthrall the thought and replenish the purse:—this instead of seeking or accepting the equivocal tasks of prolific marriage. Children they may heartily appreciate, but prefer the entertaining alternative of lavishing an hour's enjoyment on another's child rather than to gather into parental arms, taxatively, one of their own production for relentless keep and responsibility. The revolutionary women's rights movement, waged fifty years ago, and that vociferously claimed for women equal privileges with man in all remunerative occupations, and release from the servile sphere of wifehood on man's demands, set high sail for this form of abbreviated motherhood. In business relations, child-bearing, helpless infancy, and dependent childhood of offspring, would prove a material interference with the need of essential liberty, an incumbrance on the hours required by business employment,—hence the voluntary curtailment of the race thereby without question or compunction as contributive to race suicide.

Looking closer, we behold the conditional interdiction of children in hotel life, in boarding-house life, in room rental life, in all domestic situations, where man and woman, transient or permanent, are out of joint with ownership of their homes, either as tenants or as proprietors. Then what? The sexual relations by the couples cohabiting under these housing conditions must, compulsorily, be rendered infertile, or a request be accepted to move on elsewhere—but to where? The exigencies of human experience do not enable every woman who might be a mother to be mistress of a

home of her own;—what time has she, or what inclination to personally withstand the quite inexorable drift toward race suicide by habitual resort to the "preventive obstacle" to inconvenient pregnancy?

From this anarchy of enforced infertility, we glance otherwise for more human charitableness to cover the defences of unborn sons and daughters in harmony with the command: "be fruitful, and multiply, and replenish the earth" with progeny. Here we are confronted face to face with impeachments by religious bigots, by the social Pharisee censors, who scrupulously consign to implacable dishonor and disgrace for all time the warm-natured girl or woman, who, outside of legalized marriage relations, has yielded at a decisive moment to the craving of love or to the female passion of developed sex, and a love-child or passion-endowed pregnancy has intervened for maternal recognition and protection. Doomed, however, to the black repulse of censorious frown and scandal, unable to bear the crush of imputed dishonor, the expectant mother murderously destroys the product of the womb, or despairingly blots out the life of herself and of the unborn by the double suicide, that at one stroke robs society and the State frequently of what may have proved a more talented son or brighter daughter than does the often duller child of wearied wedlock. As the exceptional and more pitiable class, these sensitive and sadly-undefended victims to premature death are driven to race suicide because of the inexorableness of self-righteous judgment armed with knotted thongs of un-Christly cant. If of sound mind and healthy physical constitution, such a mother and her child are as expediently entitled to a fair and comfortable chance in the career of life as are wrecks of sickly women and puny offspring licensed to fill the world with human miseries by the professional announcer of marital testimonials. I would always agree to defend the innocent unborn of virile physique and spontaneous conjunction. This with all due reverence and respect to law and reason in liberty. One thing this country needs for the arrest of race suicide is the vigor and the valor of offspring generated by staunch virile men and women—as God's agency to reclaim a weakling, dying generation. I would seek to save the survival of the fittest from deriding crucifiers, that the Commonwealths of the land may be strengthened by every natural element of vital progress.

Our present study of race suicide now reaches the inner zone of wholesale striving to prevent conception among the legally married—the socially and legitimately recognized populators of the race. I may reasonably claim to be now an old obstetrician. Forty-six years of obstetrical and gynecological practice have convinced me that among our more intelligent class of American families, fifty per cent. of the births are the result of non-intentional copulative accidents, undesired "misses" at prevention of conception. Scarce a family, except probably that of President Roosevelt, is looking prospectively to the future welfare of born Americanism in these United States. The majority are not minded to marry and forthwith generate with national ambitions in connubial purpose. Where can we find an educated, discriminating American young woman who desires or consents to be spoused in order that she may become a large breeder for the good of

the State? Self-release from the burden and life-long responsibilities of overcrowded motherhood is the foremost ambition that gauges connubial claims and procedures. It is the more illiterate humdrum class who ignorantly and innocently suppose that everything sexual is to run the untrammelled course of natural results, and therefore take helplessly the increase of unprepared-for numbers that come, whether or not the human output are viable to the fifth year of existence, whether or not the goad of circumstances, the clamor of needs, the dwarfed conception of refinement, the caprice of coarse nature are thereby recruiting beyond all precedence the ranks of vicious roughs and aggressive criminals with which our gentle and decent society is harassed.

No sooner than do most of our brighter American women marry, yes, even before they marry, than they studiously seek to become adepts in the available practical means for avoiding conception. Under the excitements of man's early ardor, if precautions blunder or fail through inexperience, and an early child or two is projected into the household, preventive measures are revised or redoubled to more effective degree for limiting the number of births. Again, with certain women, the distractions of fear or dread, the sensations of distaste if not repulsion obtrude to deprive the wife of agreeable experience in copulative relations. If conception occur, the undesired child, the unwelcome maternity fret the spirit, fray the nerves, embitter the heart from which both the mother and foetus are naturally injured in health and promise. Individual release from conditions of discomfort is the predominating concern: the need of the race is allowed to enter no acknowledged claim.

Furthermore, undesired conception having occurred, the problem of prevention temporarily shifts the experiment to that of removal of the conception. Thus we are up, face to face, with the atrocities of broadcast abortion as the ultimate march to race suicide. The example of one woman's dare of risk kindles a taper of courage in another woman. The success of one venture fortifies the hazard of repetitions, and so the bloody banner of child murder leads abroad the deplorable slaughter of the innocents. The case of one of the most intellectual wives of my clientele recurs to me this moment. I was called to what proved a distressful miscarriage at about five months. The situation was not confessed while, in progress. On delivery, it was a boy—with a puncture through the presenting crown of the head. The position of the family did not allow me to ask questions. I silently exhibited the dead foetus to the husband. He gazed a moment and replied: "I see; and it's a boy—I wanted a boy!" A mother was in my office but a few days ago, who told me of one of her married daughters who has undergone, by professional operations by an abortionist, four abortions in three years—each time declaring she would never take the risk again—but she did. This yet young wife was inducted into the venture by the example of a widow who had lived over repeated operations for miscarriage. A death here and there does not deter the next and the next candidate for escape from viable childbirth at term;—what they seek is the more successful operator. I was called at midnight two years ago to a young wife in whom two abortions had been produced.

The second one had brought her near the straits of death. The doctor who had started the catastrophe, demoralized with fright, had taken her by the hand in desertion and said goodbye. He declined to return to the case when sought. This woman's life was saved. The majority of these cases live through the ordeal, and therefore repeat the destructive venture rather than bear the child and assume the tax of its care and rearing. A literary lady of excellent social position, once after a violent spasmodic attack, astounded me by the statement that, rather than give birth to children by a husband who was distasteful to her, she had herself caused three miscarriages by invading the uterus—and had nearly died each time. A few years ago an aunt of fine address brought to me her young niece. With the coolest business-like air she informed me that her niece had "got into trouble," and she wanted to engage a careful physician, whom she would liberally pay, to bring said niece "all right again" by getting rid of the disgracing pregnancy before it would be allowed to become known. I replied that she had come to the wrong place: that if her interested niece were Queen Victoria's most favorite daughter in similar circumstance, and I was offered all of Queen Victoria's realm, I would not touch for her the work of voluntary child murder.

Such instances are narrated here only to show how stoically and desperately race suicide has burrowed its practice into the temper and the texture of the educated and alert womanhood of this country—the womanhood that so determinedly covet individual exemption from the risks and the worries of what President Roosevelt so aptly calls "the task" of family raising. And now the scattered remnants of our older families, that were forceful pioneers in developing the liberty, the citizenship and prosperity of the country, are industriously engaged in tracing out lines of genealogical records for preservation, while millions of conglomerate foreign emigrants, as ignorant and uncouth as correspondingly prolific, are flocking into every dell and city of our land, and formidably supplanting our honored American families that so swiftly are overreaching themselves by the overweening Yankee "smartness" of child prevention or race suicide.

There remains, however, an apropos moral adhering to this "task" problem of license-right of the husband to produce pregnancies. The wife may not possess a vigorous constitution. She is doubly entitled to considerate opportunity for personal comfort in life. She needs especially the resources and sustenance of health. She is an essential factor of successful home comfort to husband and family. As a conscientious wife and mother she craves the alternatives of being spared the tax of overplus pregnancies by avoidance of too frequent conceptions, that she may recruit and preserve a fund of vital strength to promise lengthened interval of love and service to her family. Connubially she is the passive agent. She is habitually "used" at the husband's will. In kindness even he may become the cajoling master of the situation. He may even selfishly intimidate the wife's reluctance to continuous child-bearing by hinting that if he conceded to her preference for exemption, his own health would suffer and his life might be shortened. This is the specious argument resorted to by certain men. It is the soft cheek of fudge

without blush—the fluffy doughcake presented to appease his reluctance to spare a wife by self-denial.

As a medical consultant in the stress of family ills, I accept a rescuer's duty and fearlessly but kindly perform it. I have repeatedly presented to such a man thoughts like this: Did you originally court this woman, and timely inform her to that effect, because you proposed, besides her other home cares, to keep her continually bearing and toiling for children? How did you get along in chastity AND LIVE before you married her? Is it not more desirable and happier to allow your wife longer rest between the drafts of pregnancies, to have fewer and stronger children with better prospects for the race, with a healthy wife to care for them, than to force upon her a houseful of weaklings who scarce live or do not live and whose care is exhausting the mother? As husband and father, will it not kill you five times faster to work yourself to death trying to support twice as many children as your wife really ought to bear, than it would kill you by practicing relatively harmless and sinless self-denial, or to do half way as considerately as before you married her, and thus allow her the comfort of escaping pregnancies beyond her natural strength? Is not a ratio of manly self-denial less sorrowful than avoidable deaths and funerals? There is the argument that does not tend to decimation of the race nor lead to race suicide.

Now follows a different moral. On September 18, 1905, was published this statement: "A woman, deserted by her husband, and penniless, applied for aid.

She is the mother of seventeen children, seven of whom are 'dead and happy.' Although reduced to extreme poverty, the woman wants to apply to the President for a medal as example of an ideal wife and mother. The lady philanthropist to whose attention the case was brought appealed against 'indiscriminate applauding of unwelcome conditions.'"

1726 North Twenty-second street.

Motors and Odors are the subject of very timely editorial notice in *The Tribune*. The example set by a fashionable Swiss resort, in excluding from its precincts all automobiles and motor cycles which emit bad odors, should be enforced in our city parks. It is certain that public comfort and well-being would thus be promoted. It is quite true that on Sundays and other days when many people ride in these vehicles the nauseous stench of gasoline is perceptible to an unpleasant degree even on walks and lawns distant from the road. It is certainly beyond patient endurance to have the sweet smell of the flowers and the foliage, to enjoy which our parks are so eagerly visited, supplanted in this manner. Many automobiles are odorless; and no doubt many more of them could be made and kept so if only the matter were seriously attended to. The worst offenders are usually those which are run at the highest rate of speed. It is when the chauffeur "throws her wide open" that he leaves behind a trail of stench rivaling Coleridge's perceptions of Cologne. It is to be emphasized that gasoline thus taints the air in precisely the places where people have a right to expect pure air and pleasant scents. Here certainly is a matter within the jurisdiction of the Health Department.

MODERN IDEAS IN THE TREATMENT OF HEART DISEASE.

BY A. K. YOST, M.D.

I HAVE a patient, a boy seventeen years old, who looks scarcely twelve, not only from his slight physical development, but from his immature appearance. His arms are exceedingly thin and lacking in power; his chest is also emaciated, and the entire precordium bulges with each systole of the heart, while near the base of the heart there is a distinct presystolic thrill, which may be seen and felt; a very loud mitral regurgitant murmur being heard. I have ordered him absolute rest in bed, in order that the ruptured compensation of his cardiac muscle may be removed and as he is going to be put at absolute rest in bed, we can afford to regulate and quiet his irritable heart by the use of small doses of both aconite and digitalis; two minims of the tincture of aconite and four minims of the tincture of digitalis every eight hours, putting him upon a liquid diet for a few days. After the heart improves sufficiently we will let him out of bed from half an hour to an hour a day, gradually increasing this time of activity until he is up all day. I believe that it would be a mistake to give this boy general nutrients and active tonic treatment, with exercise, with the idea of improving his general physical condition. He is stunted because his heart is not strong enough to supply a well-developed child; just as soon as his heart is strong enough to supply a well-developed frame he will begin to grow, increasing both in height and in girth naturally.

The following relations of the normal heart and lungs to the anterior chest wall was prepared by Haynes. I keep it cut out in my case-book.

1. Base of heart: A line crossing the sternum obliquely from the upper margin of the third right to the lower border of the second left costal cartilage, an inch and a half from the median line on each side.

2. Apex: In the fifth space near the upper margin of the sixth costal cartilage, two inches and a half to the left of the median line.

3. Right border: From the right end of the base curved slightly outward to reach a point an inch and three-quarters from the right of the middle line over the fourth cartilage and ends at the centre of the fifth cartilage an inch from the midsternal line.

4. Left Border: From the left end of the base with a convexity outward to the apex. It reaches its greatest distance (three inches) from the sternal centre over the fourth space.

5. Lower Border: A line curved downward at its beginning (at the lower extremity of the right border) and ending at the apex, and slightly convex upward in its centre as it crosses the middle of the ensiform.

6. Heart Dulness: A quadrilateral area to the left of the median line and below the upper border of the fifth cartilage, nearly two inches in vertical and an inch and a half in extreme lateral measurements.

7. Auricles. Right: "Ear-shaped," facing to the left, covering the first inch of the third right space and cartilage with the portion of the sternum adjacent to the latter. Its long axis measures about two inches and is inclined from above downward and outward. Left: Is a small oval space half an inch by an inch, its centre an inch and a quarter to the left of the median line behind the second left space and third cartilage. Its long axis is directed from above downward and outward.

8. Auriculo-ventricular Groove: Is indicated by a line from the right to the left heart border, beginning

on a level with the upper margin of the fourth right and ending on a level with the lower edge of the third left cartilage. This line is convex upward and crosses the middle of the sternum on a level with the lower border of the third cartilages.

9. Aorta: A little more than an inch wide and about two inches long. Extends from the upper border of the third to behind the middle of the first cartilages. At its beginning and ending its centre is behind the median line, but in the middle of its course the artery is convex toward the right.

10. Pulmonary Artery: Begins on a level with the lower border of the third and ends behind the middle of the second left cartilages. Below its centre is half an inch and above three-quarters of an inch to the left on the median line.

11. Coronary Arteries: Both are nearly vertical; they incline slightly towards the median line at their lower ends. Right, an inch from the mid-sternal line. Extends from the upper border of the fourth to the lower border of the sixth cartilage. Left, an inch and three-eighths from the middle line in expansion, and three-quarters of an inch in contraction of the heart, extends from the middle of the third to the lower of the sixth cartilage.

12. The Anterior Margins of the Lungs in Inspiration: Right lies to the left of the median line, a quarter of an inch from and parallel with it from the upper margin of the second to that of the sixth cartilage (sternal ends). The left is in contact with the right from the upper border of the second to the mid-point between the fourth cartilages, where it turns downward and outward along the upper margin of the fifth left cartilage; the length of contact being two inches and a half.

Harris has studied three cases of indurative mediastino-pericarditis, and he has collected all the published cases of this rare lesion when autopsies were obtained. He thinks that this affection cannot be as rare as is commonly supposed; marked examples present an interesting clinical history, and one which is sufficiently distinctive to permit the recognition of the disease during life. Pathologically but probably not clinically, three classes of cases of chronic inflammatory conditions exist in relation to the pericardium and the mediastinum:—Class I comprises cases where there is an adherent pericardium, with marked increase of fibrous tissues in the mediastinum, not infrequently associated with a caseous affection of the lymphatic glands of the mediastinum, where there is adhesion of the exterior of the pericardium to the surrounding tissues—true indurative mediastino-pericarditis. Class II comprises cases of adherent pericardium with thickening of the sac, and adhesions of its exterior to surrounding parts, but with very little, sometimes no general mediastinitis. This has been termed pericarditis externa and interna; it is more common than Class I. Class III comprises those rare cases where there is an increase of fibrous tissue in the mediastinum without any internal pericardial adhesions or chronic mediastinitis.

This affection does not occur most frequently in children, as commonly supposed, for of twenty-two cases only nine occurred in persons under eighteen years of age, and thirteen in persons over that age, but only two cases occurred in persons over thirty years of age. The cases reported belonging to Class III, or chronic mediastinitis, all occurred in older persons, the youngest being thirty-seven. There is usually a history of acute illness, generally some acute chest affection, oc-

curing some time before manifestations of the symptoms of mediastino-pericarditis. Occasionally this illness is clearly an attack of acute pericarditis; probably the acute illness represented the time when the disease commenced, and the manifestation of symptoms indicative of indurative mediastino-pericarditis at a later date represented the commencement of the cardiac dilatation and failure caused by pericardial adhesions. But in some cases the only previous acute illness was one of the acute fevers, such as scarlet fever or measles, while we find in many cases the onset has been insidious, without any symptoms of acute chest affection being noted. Trauma does not appear to play a part in the causation of this condition.

The symptoms are chiefly dyspnea, more or less evidence of venous engorgement and cyanosis, cardiac enlargement, increase in the size of the liver, and either general dropsy, or only ascites, and inspiratory swelling of the cervical veins. All these signs are not, however, necessarily present. Enlargement of the heart and dilatation rather than hypertrophy exist. This cardiac enlargement is due to the increased work thrown upon the heart by the adherent pericardium, and the degeneration of the cardiac muscles which supervenes. A marked increase of the mediastinal dullness follows, but this is usually due to increased size of the heart, especially the right heart. When the heart is very markedly dilated, and especially when it is pushed up by fluid in the abdominal cavity, the mediastinal dullness may be very extensive, reaching up even to the lower border of the first rib. In some cases, however, enlarged caseous glands, together with increase of the fibrous tissue of the mediastrium may, apart from the enlarged heart, produce dullness over the upper part of the sternum. The pulse may be practically normal, but more commonly it has been found small, frequent and irregular; the form of irregularity in which the pulse becomes smaller during the act of inspiration, or the "pulsus paradoxus," was formerly thought to be pathognomonic of mediastino-pericarditis, but Harris has shown that this "pulsus paradoxus" is not diagnostic, for it is seen where there is no mediastinal affection, and mediastino-pericarditis may exist without this symptom. Clinicians now know that the pulsus paradoxus occurs also in different forms of pericarditis without mediastinitis, in cases of large pleuritic effusions, in great cardiac weakness, in convalescence from long-standing febrile affections, in great dyspnea from narrowing of the air passages, in cases of mediastinal tumor, and in mitral incompetence with dilatation. Compression of the inferior vena cava at its entrance into the auricle during the inspiratory period will produce it and slight diminution of the pulse has been observed in sphygmographic tracings taken from perfectly healthy persons. Engorgement of the cervical veins is common in cases of mediastino-pericarditis; they may show marked pulsation, just as in cases of dilatation of the right cavities of the heart from simple dilatation or secondary to valvular disease of the heart. A peculiar form of distension of the right external jugular vein has been considered of great diagnostic value; the vein being seen to fill and become distended during the act of inspiration, especially when a deep inspiration is taken, but unfortunately for its diagnostic value, this inspiratory swelling of the right cervical vein is sometimes absent, and it has also been observed in an uncomplicated case of pericarditis exudativa.

The duration of indurative mediastino-pericarditis va-

ries from a few months to a number of years; the cause of death also varies, but generally it is due to gradual cardiac dilatation and heart failure, while bronchitis and catarrhal pneumonia frequently assist in bringing about a fatal termination. Attacks of pleurisy appear to be very common in the affection, and must assist in reducing the powers of resistance. In other cases we may have the development of acute tuberculosis or the extension of a pre-existing phthisis as the principal cause of death. No special treatment is of much avail and the management is simply that of cardiac dilatation.

Errors in the diagnosis of cardiac diseases may arise as follows, as pointed out by Jackson: (1) A murmur may be evanescent even in the presence of a well-marked valvular lesion as well as in mere functional derangements. (2) A murmur may be audible to the ear when applied to the chest, but not through the stethoscope, and this characteristic applies most frequently to the bruit of aortic regurgitation. (3) Murmurs do not always confine themselves to their regular areas, *e. g.*, an aortic regurgitant murmur may be heard at the apex only. (4) Estimating the size of the heart. Variations in the position of the apex beat are frequent under normal conditions, and on the other hand marked valvular disease may exist without enlargement of the cardiac area or sign of displacement. (5) Some cases regarded as functional palpitation are undoubtedly due to adherent pericardium. (6) The secondary congestion, *e. g.*, gastric and hepatic, may overshadow the cardiac lesion, especially in cases of acute dilatation without endocarditis. In aortic atheroma also the gastric symptoms may entirely divert attention from the graver lesion. A small aneurism of the first part of the aortic, producing cough and asthma by pressure on a bronchus, may easily lead to diagnosis of lung disease as the primary factor. (7) The presence of acute lung or general disease may mask so grave a lesion as malignant endocarditis, especially if the purpuric eruption and any murmur are absent.

Formerly it was taught that commencing pericarditis is first manifested by an increase of the cardiac dullness at the base of the heart, but this is combated by Ebstein who finds that the first alteration occurs in the lower regions of the area of dullness; there is a stretching of the pericardium towards the left side, but this is seldom discoverable, partly on account of the occurrence simultaneously of left pleurisy, partly on account of the overlying of the cardiac apex by the lung, partly on account of the loud tympanitic note in the semilunar space. Then the pericardial sac will be distended towards the right side also and this enlargement may be recognized clinically in nearly every case by the fifth right intercostal space, named by Ebstein the "cardio-hepatic angle"; this absolute dullness is of importance for the differential diagnosis between pure hypertrophy of the heart and accumulation of the fluid in the pericardium, because according to Ebstein, so far as has been hitherto ascertained, absolute heart dullness between the fifth and sixth ribs, even in extreme right-sided cardiac hypertrophy, does not extend beyond the right sternal border.

In cardiac asthenia there is habitual feeble action of the heart, which may come from two causes: either nervous failure or a weak heart muscle. It expresses itself frequently in a sudden cardiac collapse; the history is that the patient is obliged to stay in bed; all attempts at sitting up produce a sense of swooning and a vanishing pulse, or there is actual fainting at times. Cardiac ac-

tion is feeble, the pulse small and compressible, and generally increased in frequency; and there is a sense of uneasiness in the cardiac region, but very rarely actual pain; while the extremities are cold and the general temperature is somewhat below normal. The capillary circulation is poor, the skin pale, occasionally injected or flushed; sweating is the exception, but the breathing is conspicuously unaltered, although there may be a sense of oppression. "I am out of heart rather than out of breath," was the expression of an observant patient of Da Costa, who added: "the heart has taken possession of the whole chest." The appetite is poor, though there are no marked gastric symptoms; the bowels are generally constipated. Insomnia may be complained of; while apprehension and melancholia are common; from this state the patient rallies slowly; for it may be one or two months before he can sit up without inclination to faintness, and months more before he recovers; the course of the disease being as markedly chronic as the onset was rapid. Slow pulses are quite the exception, and the pulse is feeble, very compressible, at times almost imperceptible; the heart's action is influenced by position, but not to the extent that the irritable heart is. The physical signs of this disorder are significant; no increased percussion dullness exists; the impulse is feeble, difficult to find, not diffuse. The first sound short, lacks in volume; the second is not accentuated. Excluding anemic murmurs, which are very infrequent, since anemia does not play an important part in the affection, there may be, though this is also rare, functional apex murmurs of dysmic origin. These cases happen in those who from overwork or worry have had their nervous tone lowered; the breakdown being primarily in the nervous system and not in the heart. The cardiac malady is throughout neurosomal rather than muscular. It is very difficult to say to what part of the nervous system influencing the heart the disorder should be ascribed. Da Costa was inclined to attribute the cardiac weakness more to disturbances in the cardiac ganglia than in the centres in the medulla, and to the disordered inhibitory influence of the vagus. The changed respiration seems to be against the view of the centres in the medulla being decidedly affected, as the centres for the heart and the respiration are there so closely connected. The malady is not hysterical, as in the great majority of cases hysterical symptoms are conspicuously absent. The great majority of cases occur in men, and it is always a long-drawn-out affection. The evident nature of the causes that have given rise to the heart-wreck, its generally sudden onset, the unembarrassed breathing, the feebleness of the pulse and of the cardiac impulse, are full of significance. The physical signs as well as the state of the respiration in the clinical history separate the weak asthenic heart from the weak heart of organic type, such as the typical ones of this group—fatty degeneration and cardiac dilatation. From the irritable heart, it is diagnosed by the history, by the fact that in this malady the patient has had a heart-strain or a gastric or an intestinal affection, that he is able to be about, that the heart's action is generally much more rapid, much more influenced by change of posture, that the impulse is sharp, jerky, diffuse, the pulse quick, small, not so faint, the second cardiac sound sharp and clear. For the asthenic nervous heart, rest in bed is first essential, and, when the patient is able to sit up, nothing does him so much good as graduated shower baths; massage, too, may be employed, but many cannot at first

bear it, and it comes in better later. Swedish movements may be recommended later, and carefully adjusted exercise, such as walking, or gentle horseback exercise, or light gymnastics, but these agents can be tried from the start, where the weak heart depends on a weak heart-muscle. From Swedish movements adapted to promote the flow of blood and to strengthen the heart, Da Costa has seen in this class of cases great good; the action of the heart becoming distinctly stronger and more regular, and in young persons a permanent cure may be accomplished. Nutritious food should be taken as frequently and in amount as large as the digestion will readily tolerate, is excellent with stimulants occasionally. It is astonishing in what quantities they are borne, and temporarily even required, in the nervous heart; though, for fear of forming a habit, withdraw them as soon as the circulation strengthens. Constipation demands attention; remedy it by diet and light laxatives. In this condition strychnine stands pre-eminent; the dose need not be large—rarely exceeding 1-30th of a grain three times daily—but it must be continuous. Iron is not called for except when a complication with anemia exists, or later in the case as a general tonic, for its tendency to constipate makes it often of doubtful value. Arsenic, for the nervous asthenic heart, comes next to strychnine; its action cannot be explained by its removing anemia, for it proves to be valuable where the blood count shows that there is no anemia. Of heart tonics digitalis is the best, but it is not the certain remedy we might suppose; best adapted to the cases of muscle weakness. Where we give it in large doses the patient should be kept in bed. It does not suit all cases. Strophanthus is generally said to be inferior to digitalis, but not in my experience. Adonidin and chloride of barium have done at times good service; while cactus and convallaria have been disappointing. Caffeine and cocaine are both valuable, but their action cannot be kept up; from cocaine one would run the risk of establishing the cocaine habit; it is serviceable during urgent symptoms of failing heart. Nitro-glycerine is not of much avail, except there be cardiac pain, unless combined with remedies like digitalis, which act more distinctly on the force of the heart, while bromides, valerian, and opium ought to be left to meet special indications.

Zeehuisen, studying the effects of the body-position upon the physical phenomena of the heart in adolescence, notes that the change from a horizontal to a vertical position makes the apex-beat assume a lower position, it being usually in the fifth intercostal space when the person is vertical and in the fourth space when he is horizontal; also, an area of dullness beneath the sternum is discovered when the individual is horizontal; while this vanishes when he assumes the vertical position. Both changes are due to the fact that in the horizontal position the thorax and diaphragm are in the position of expiration; while this changes to a position of inspiration upon assumption of the vertical posture; therefore murmurs are often heard more distinctly when the patient is lying down than when he sits or stands, due to the fact that the vertical posture is associated with the inspiratory position of the thorax, the heart being then more completely covered by the lungs, and murmurs or reduplication of the second sound being less distinctly transmitted. Even in health this is noted in the case of accentuation of the second sound of the aorta. Normally the pulmonary second sound is better heard than the aortic when the

patient is horizontal; this is less noteworthy when he stands up. Zeehuisen has directed attention to the fact that with the changes of position of the thorax from that of expiration to that of inspiration there occurs a marked alteration of the relative position of the ribs and overlying skin, so that areas marked out on the skin in relation to the ribs are very different when the patient is in different positions; so that the percussion-area of the horizontal position grows greater upward and to the left when the patient assumes the upright posture. He believes that the cardiac phenomena, with the exception of those occurring at the aortic orifice, are better auscultated when the patient is lying down. For the discovery of modifications of sounds about the aorta, however, he states that the vertical posture is best; he especially directs attention to the fact that most office-patients are examined only when sitting or standing, and that abnormalities which might be evident in a horizontal posture are often overlooked in consequence.

Most functional heart-murmurs are of cardiac-pulmonary origin; there is no constant relation between them and dilatation of the heart or anemia, and they are heard most frequently over the pulmonary region; while if they were due to the blood-condition they would probably be more frequent over the aorta, since the blood-current is more rapid here, and the change in the lumen in the passage into the aorta is more marked, than when the blood flows into the pulmonary artery. Cardiopulmonary murmurs are produced by compression of the lung, or by aspiration when the heart recedes; a sound is produced because of the rapidity with which the movement takes place, this statement meeting the objection that the normal passage of air through the bronchi into the infundibulums does not produce a local sound. These murmurs are usually largely dependent upon the phase of respiration for their intensity and character; though this is not necessarily so, since the murmur is not dependent upon respiration so much as upon the cardiac movements.

OBSERVATIONS UPON GONORRHEA AND ITS COMPLICATIONS.

BY J. LEE FOWLER, M.D.

FENWICK combines dyes with urethral injections for obstinate gleet, for the reason that while the greater number of cases of gonorrhea recover under routine treatments, still a small proportion of gleets prove intractable, and drift from office to office. The morning discharge in these obstinate cases varies in significance, and for diagnosis Fenwick uses dyes. In the smaller number it is mere mucus—the secretion of the recently over-stimulated urethral glands; generally the thin gleety stuff is discharged from definite patches of congestion, from granular erosions, or from tracts of inflammation behind some large calibre stricture. Such changes of surface may be seen in all parts of the entire canal, from the opening of the bladder to the meatus. These diseased patches shed off the shreds of muco-pus which are so often seen in the morning urine in the shape of white flakes or threads. It is difficult for those who do not employ the electric urethroscope to say whether these patches or granular erosions are situated in the penile urethra, and are therefore accessible and curable by ordinary urethral injections; or whether they are located in the membranoprosthetic sections, and are beyond the reach and control

of the injections which the patient is able to use himself. According to Fenwick the additions of dyes to the injection settle this point; for by such means the flakes or threads are dyed; he has been in the habit of providing each dispensary patient with a coloring injection, in order to save the time which is necessary for the examination of the deep or posterior urethra with the electric prostatoscope. The patient brings him the first part of the morning urine, and, if only colored threads are visible in it he knows that the penile urethra is at fault, because in only about six per cent. can an injection, given without undue force, pass the opening of the membranous urethra. If only white threads appear, the foci of the disease are in the deep or posterior urethra; generally there is a mixture of the white and colored threads, and this bears out the more advanced teaching concerning gleet, that the posterior urethra is, in a large majority of cases, affected as well as the anterior. The dyes used most commonly are tr. catechu mvij ad 3j, and the liquid extract of red gum miv—mx ad 3j; watery solution of methyl violet, 1 in 3,000, can also be employed; if he has time, the practitioner can wash out the penile urethra himself into one glass, and cause the patient to pass water into another so that he will be able at once to see whether the posterior section is involved as well as the anterior.

Routier of the "Hospital Chochin-Routier," in acute stage of gonorrhea does nothing beyond having the patient wear a suspensory bandage and take an alkaline bath every three days for ten days. If the case is of some weeks' standing the treatment can be commenced at once. If abscess, fistula or other complication, he treats these first before attempting to cure the gonorrhea. A reservoir holding two quarts is filled with solution of permanganate of potash (1 in 2,000), warm, if possible; an india rubber tube two yards in length with a glass nozzle at the end is fixed to the reservoir; the patient urinates, the reservoir is placed about five feet above the penis, the glans and meatus are irrigated, and then the nozzle is introduced into the meatus when the liquid flows in until it reaches the sphincter, when it returns and escapes washing out the anterior portion of the urethra; to reach the posterior portion of the urethra, the meatus is pressed against the cannula, and the liquid being able to escape forces the sphincter and enters the bladder. As soon as the patient feels the desire to urinate the current is turned off and the man recommended to press on the penis from time to time while ejecting the solution so as to stop the flow, by which means the liquid penetrates into all the glands and its action is increased. This may be repeated once or twice. If five feet is not high enough for the liquid to penetrate the bladder the reservoir may be raised. One seance a day is sufficient, and if the patient comes every day he is cured at end of eight days. To ascertain if the patient is really cured of his gonorrhea put a few drops of solution of nitrate of silver (1 in 1,000) into the urethra, a chemical inflammation is produced, and if any gonococci remain a drop of pus will be discovered in the morning.

Hutchinson in his treatment of gonorrhea nearly always uses abortive measures, never sees any ill consequences, while complications are rare; he says he should as soon think of delaying the use of local measures in gonorrhea as he would in purulent ophthalmia. His treatment is as follows: (1) An injection of solution of chloride of zinc, 2 grams to the ounce, is used three or

four times a day; (2) 10 to 20 minim capsules of sandalwood oil, 1 three times a day; (3) a purgative night dose consisting of 3 drachms of epsom salts and $\frac{1}{2}$ a drachm of bromide of potassium, in addition moderate purgation and entire abstinence from stimulants. If patient is well purged Hutchinson says there is no risk whatever in an abortive treatment from the day he comes under observation.

In synopsis of the remedies used in gonorrhea the *Medical Annual* gives this report:

Injections of silver nitrate, 1 to 2,000 or 4,000; ammonium sulph-ichthyolate, 1 to 100; sublimate, 1 to 30,000 or 1 to 2,000. Hutchinson uses first an injection of zinc chloride, 2 grs. to 3j; next, sandalwood oil capsules; lastly, a purgative night dose of epsom salts with bromide of potassium. Saalfeld treats painful erections with lupulin, camphor, monobromate of camphor and a combination of antipyrin with bromide of potassium (15 grs. to 45 grs. respectively); local washing and injection of thallin sulphate, one per cent., or weaker, four to six times daily, or zinc sulpho-carbolate, 2 to 3 parts to 1,000; or a mixture of zinc sulphate of 2-10 of 1 part, acetate of lead 4-10 of 1 part, distilled water 100 parts; or zinc sulphate, carbolic acid and alum, each .2 or .3, Aq. 100 parts; or potassium permanganate 3 to 100, or Resorcin 1 or 2 to 100, or solution of tannin 5 to 25 to 100 as injections. In addition salol, oil of santal, copaiba and cubebs may be used internally. Glenn used: R Zinc chloride, gr. $\frac{1}{2}$; zinc iodide, gr. j; Aq. 3j, as an injection. Infante uses fluid extract of llareta, giving a tablespoonful daily of two per cent. mixture of the extract in water. Jadasson employed ichthyol for urethritis in women, and gonorrheal cervical catarrh; 10 per cent. ointment is used being weakened for application to the female urethra. Grivtsoff employs salol, 1.5 grm. with a few drops of peppermint oil three or four times a day with cubebs if desired, and for an injection; R Salol, 10 grms.; Gummi Arab., 5.0; Aq. dest., 2,000.0; M. Ft. Emuls. Inject three or four times a day. Permanganate of potash, 1 to 4,000 solution, injected through a rubber catheter with lateral perforations. Carvallo uses: R (1) Sol. of lysol (1 %), 100 grms.; Sydenham's laudanum, 3 grms.; M. (2) R sol. of lysol (1 %), 100 grms.; cocaine chlorhydrate, 50 grms.; M. These injections are allowed to remain in the urethra four or five minutes, and are used three times daily. Now, however, some of the newer salts of silver are preferred and I believe in ten years that this list will be obsolete.

Stomatitis, with the formation of round, grayish-white patches on the surface of the tongue and cheeks, much swelling and soreness, and evidence of inflammation of the sublingual glands has been reported in cases of gonorrhea—cultures showing gonococci. The infection had been through the mouth, and had been preceded by a double gonorrheal conjunctivitis, and the buccal infection was probably secondary. There was also swelling, soreness, and restriction of movement in the maxillary joints, attributed to a coincident gonorrheal arthritis.

A true stricture is cicatricial constriction of the urethral cylinder, involving all its layers and forming an impediment to the normal energy of expulsion; but inflammatory infiltration of the mucous and submucous layers of the urethra, though encroaching upon its calibre, but lacking the character of organized and permanent scar-tissue, does not constitute true organic stricture. Following a stricture is seen a phenomenon similar to

that noticed in stenosis of the cardiac valves, for to accomplish certain work a greater expenditure of muscular energy is necessary, and muscular hypertrophy follows, which after a sufficient lapse of time develops into a state of fatty degeneration and fibrous contraction from which develops a contracted bladder; finally, a "backing up" to the column of urine, leading to dilatation of the membranous portion of the urethra, to contraction of the bladder, to dilatation of the ureters, and finally to dilatation of the renal pelvis. Genuine traumatic stricture is the result of a partial or complete severing of the urethra by external violence; as the depths of the cicatrix generally includes all the urethral layers it is apt to produce a very tight and tense stricture, not amenable to blunt dilatation, generally found in the posterior part of the urethra, under the arch of the pubis, and a safe division can be attempted only by external urethrotomy, which, on account of the slightly diminished tendency to recontraction, must be supplemented by dilatation from time to time. For a lasting cure of traumatic stricture a plan has to be adopted which has yielded lately excellent results in the hands of a number of surgeons. It consists in the excision of the cicatrix and the suture of the mucous membrane and the other component parts of the urethra, but in gonorrheal strictures it is necessary to comprehend the details of the manner of its production. That gleet is due to the presence of a stricture has been entirely abandoned by modern venereal writers; it is a chronic discharge of varying intensity, directly due to chronic gonorrheal urethritis, which in the endoscopic field of vision is called now as the "granular form" of urethritis due to an infection of the submucous connective tissue, very frequently extending into the erectile body of the urethra, leading to the deposition of varying masses of granulation-tissue. Depending on the linear extent, depth, and general configuration of this cicatricial tissue the tendency to shrinkage will be lesser or greater and the density, rigidity, or resiliency of this cicatricial ring will also vary. Perfect evacuation and drainage of that portion of the urethra behind the stricture is not possible; hence urine, shreds of mucous, and pus, will be retained, keeping up a continuous culture of various micro-organisms for a chronic urethral process is rarely, if ever, caused simply by the presence of Neisser's gonococcus; the infection being a mixed one, other micro-organisms, staphylo and streptococci being present naturally stricture hinders evacuation and impedes medication from the outside; a chronic granular process first established in the navicular fossa, followed by a stricture creeps back, leaving permanent vestiges of its destructive work along the entire pendulous portion, in the bulb, and finally the membranous, and even the prostatic portion; until the entire urethra may present one continuous stricture. The gonococcus, though usually confined to the urethra, may involve the corpora cavernosa, the scrotum, perineum, and anal region to a most extraordinary degree.

In granular urethritis the deposit on a transverse section shows a rich network of capillary vessels; the mucous membrane being in a state of intense congestion, shedding the superficial layers of epithelium. In the endoscope such a patch appears to be "velvety," intensely congested, the tissues rigid, and bleeding on touch. As the cicatricial tissue grows the urethral scar becomes less and less vascular; in the endoscopic field the presence of this stage can be determined by the lack of the

normal finely-folded, star-shaped arrangement of the mucous membrane, and by a very striking phenomenon, due to the ready expulsion of all blood from the mucous and submucous layers of the urethra by the endoscopic pressure; the proximal end being withdrawn, the strictured portion escapes the distending pressure of the instrument, the field of vision, formerly white, becomes quickly reddened by the return rush of blood. Before the endoscope the precise and scientific diagnosis of the distribution of the gonorrheal process in the urethra was uncertain; then local treatment was a wholesale procedure, the entire urethra being subjected to medication, with unsatisfactory results.

Nowadays in up-to-date work in chronic urethritis locate the exact place of the gonorrheal infection. For this the endoscope is necessary, not only on account of its diagnostic properties, but for precise and rational local treatment. Solutions of the newer forms of silver, varying in strength according to the case, are the most valuable. The holder of steel wire is armed with a tuft of absorbent cotton, by means of which a precise application can be made. A recent deposition of granulation-tissue can be modified by mechanical pressure, exerted by a steel bougie and augmented by gentle massage over the instrument. This requires a complete eradication of the specific coccus beforehand, for which repeated applications of silver are necessary. These early vascular and elastic bands in the submucous layers of the urethra, designated by Otis as "strictures of large calibre," were generally cured by free division and subsequent forcible dilatation; Gerster repeatedly tested the fact, by careful and long-continued endoscopic observation, that a recent inflammatory narrowing of the urethra, due to a vascular deposit, was seen to shrink rapidly after scarification either with a urethrotome or with a tenotomy knife, followed by mechanical pressure exerted with a steel sound; cure is considerably hastened by a complete division of the diseased tissues. The results in cases where the organization of the deposited granulation-tissue into fibrillar connective tissue is completed are not so good, for no lasting cure or freedom from tendency to recurrence can be secured here, no matter what the treatment. Necessarily, a new cicatricial deposit will be interposed in the gap caused by the urethrotomy, and, left alone, the process will irresistibly tend to constrict again. Gerster states that "where a circular and cicatricial stricture, involving all the components of the male urethra, has been established, whether through a traumatism or through a gonorrheal process, a complete, lasting, and radical cure cannot be accomplished by any of the known methods of surgical treatment short of incision and suture; a vast proportion of cases of granular urethritis tending to the formation of permanent stricture can be managed successfully, and in a manner to eliminate the morbid process, and thus to prevent the formation of permanent damage to the urethra. A small proportion of all cases of gonorrheal urethritis, intractable, will tend irresistibly to the completion of the fatal circle, ending in the formation of permanent stricture."

In impermeable stricture the first indication is to evacuate the bladder by the passage of a catheter; should this not be successful, even the passage of a filiform bougie will afford relief. Should this succeed, it is wise not to withdraw the instrument for the sake of trying to pass a larger one, as it may be impossible. Fasten the filiform bougie in position and leave it for twelve hours; urine will pass alongside this instrument in increasing

quantities. If the patient's distress is excessive tap the bladder above the pubes by means of an aspirating needle. After the lapse of ten or twelve hours the irregular channel of the strictured place will have been flattened out, by the bougie, and the local congestion will have diminished to such an extent that instantly after the withdrawal of the filiform bougie a larger instrument can be passed in without trouble. No trouble should be found after this in dilating the stricture sufficiently, and maintaining this dilatation; failing to pass the stricture the dangers of retention remaining unrelieved, evacuation of the bladder will have to be accomplished by aspiration above the symphysis. As the congestion of the stricture is relieved, micturition will improve and the passage of an instrument will become possible, until then puncture may be safely repeated five or six times, but should these expedients fail and the stricture remain impermeable, and serious cystic disturbances arising, instant and radical relief becomes imperative by the use of external urethrotomy without a guide. Petit and Cocks developed a method based on correct principles, and has been employed by them and many others, a great number of times; the deepest part of the urethra lying behind the stricture is considerably dilated, this dilatation being proportional to the duration and tightness of the stricture. The diameter of this retro-strictural part of the urethra when empty may be three-quarters of an inch; this dilated pouch, being practically a direct extension of the hollow of the bladder, and lying just in front of the prostate, can be easily punctured if its situation is understood; the left index finger, having been passed into the rectum, is pressed up against the prostate, the exact location of which being thus marked, a narrow knife is introduced just above the anus, clearing the sphincter, and is passed directly towards the space located just above the left index finger; the object being of considerable size, cannot be missed, and a gush of urine escapes along the blade; do not withdraw the knife until the grooved director has been placed securely beyond its point; whereupon the knife can be removed, dilating the wound in an upward direction along the median line. Should a stricture be situated behind the triangular ligament, internal urethrotomy must be preceded by external urethrotomy; whether the stricture be permeable or not, drain the bladder first by external urethrotomy before the strictures situated behind the bulbous portion are cut—in this way securing permanent drainage of the bladder and the possibility of its local treatment by irrigation. Should hemorrhage be serious, pressure can be safely and permanently exerted upon those parts lying in front of the opening in the membranous part. After the guide has penetrated the stricture, external urethrotomy can be undertaken and the greatest danger is the injury to the vascular mass of the bulb of the urethra, consisting of erectile tissue supplied by the bulbar artery. Injury to this plexus is always followed by considerable hemorrhage, which cannot be controlled by ligature, and not always by pressure. Remember that as soon as the skin, fascia, and perineal muscles are divided the bluish and elastic body of the bulb will appear in the bottom of the wound, just above the sphincter ani, about one-half to one inch from it. This space corresponds to the membranous portion of the urethra, and in this space the urethra must be opened. The bulb can be raised out of the field of operation by means of a blunt hook; the surgeon's finger can easily feel the guide; as soon as the

urethra is open a probe is passed into it and through it into the bladder. The knife is withdrawn, and the grooved director is passed down the probe, which is withdrawn, to be followed by the introduction of a closed forceps. When this is withdrawn, with its branches held open, the innermost portion of the urethra is sufficiently dilated to introduce a soft catheter by means of which the bladder can be thoroughly irrigated. Otis's urethrotome is excellent, except that its thorough cleaning and drying is difficult, due to the presence of riveted joints; these joints frequently became rusted, and broke when in actual use; and the exact location of a stricture to be cut had to be carefully marked out on the instrument, and the second separate examination was necessary to determine whether the stricture was sufficiently divided. Principally with a view towards the perfection of an instrument capable of thorough and easy cleansing, Gerster has constructed a urethrotome which is simple, strong, which by its bulbous apparatus will correctly indicate the exact location and the extent of every stricture, and in dividing the strictures will at some time indicate whether the stricture has been cut in its full linear extent to a sufficient depth for the re-establishment of the desired calibre. Using this instrument it is passed in the closed state with or without the guidance of a filiform bougie and the tunnel at its beak, through the stricture to be divided. Then it is opened to the desired calibre, which is indicated on a dial near its handle.

The penis being grasped by the left hand, the instrument is drawn forward during which act, the stricture, being put on the stretch by the bulb, is divided by the knife hidden during introduction in the beak of the urethrotome. To pass the stricture the knife must cut through all resistant tissue, and at the moment when the bulb of the instrument has passed the strictured portion it may be safely assumed that the desired calibre has been gained. Two, three, or more strictures can be thus divided one after the other without changing anything in condition of the instrument, which will slip harmlessly through those parts of the urethra which are not constricted, the tension of the normal urethra produced by the dilatation not being sufficient to resist the passage of the small cutting blade. If the meatus is too small to admit the introduction of any necessary instrument into the urethra, divide it with a probe-pointed knife enough to admit this instrument. Flush the urethra as soon as internal urethrotomy has been performed, and the urethrotome withdrawn with an antiseptic lotion. To ward off secondary hemorrhage a good-sized webbed bougie or catheter should be passed down to the elastic catheter previously brought out through the perineum, and, being tied in, should be left in situ for twelve hours; to prevent hemorrhage, the calibre of this webbed catheter should be great enough to exert pressure upon the cut urethra. Where internal urethrotomy alone is performed, serious hemorrhage following, a full-sized catheter should be passed into the bladder, and left in situ for twenty-four hours; if this is not the case do not distend the urethra at all. Splint the penis between two well-padded strips of pasteboard or veneering, firmly compressed by a few turns of the roller bandage. Finally a T-bandage is applied, bringing and compressing the genitals well up over and against the symphysis pubis. Slight hemorrhages will frequently occur during the first acts of micturition following urethrotomy, which are easily controlled by finger pressure which the patient can be taught to apply himself; for profuse hem-

orrhage a webbed catheter can be passed, and tied in for a day. Should the urine be ammoniacal before external urethrotomy, drainage of the bladder is to be maintained, and local and internal medication employed until the urine becomes acid, when perineal drainage can be stopped. In cases where the urine is acid at the time of the operation perineal drainage is maintained, as a matter of routine, for five days, when dilatation by the daily passage of steel sounds is usually begun. Before using a sound thoroughly irrigate the urethra and bladder. The external wound should be lightly packed with iodoform gauze, which is to be renewed after each urination, followed by the local treatment based on general principles. From the third week on the steel sound is passed only twice a week, this practice being systematically continued until the last trace of a tendency to contraction is lost. These patients should be instructed in the proper use of the steel bougie, with the warning that neglect will certainly be followed by a return of former conditions.

I believe thoroughly in these ideas in the treatment of gonorrhea that initial gonorrheal infiltration of the urethral wall or so called "granular urethritis" needs endoscopic treatment by the applications of some form of silver, aided by bougie pressure, massage, with internal urethrotomy if necessary, preventing in this way the formation of permanent stricture; cure depends on the absence of gonococci in the discharges and the re-establishment of the normal urethral calibre; on the other hand unchecked granular urethritis ends in the formation of permanent cicatricial stricture and urethrotomy of organic stricture is only palliative, not radically curative.

External urethrotomy should precede internal urethrotomy of the membranous portion always, but after all excision of the stricture and suture of the healthy parts of the urethra is the measure par excellence, for a permanent cure.

Medical Education was the subject of a report by a committee of the American Medical Association at Portland. After conferences with forty-two states and territories, the Army representatives, the United States Public Health and Marine Hospital service, the Association of American Medical Colleges and the Southern Medical College Association, the consensus of opinion was stated to be: That the Council on Medical Education should be considered a nucleus about which should crystallize the efforts to elevate the standards of education; there should be an annual conference of the licensing bodies of the states and territories, the representatives of the medical faculties and of the faculties of colleges of the liberal arts. A permanent organization of the council is desirable, with a secretary and sufficient equipment and financial aid for the efficient prosecution of its work. The following requirements were urged: 1. A high school education, with examinations to prove the students' fitness. 2. A four-years' course of seven months each, no two in the same year, the course to be approved by the Council on Medical Education, by licensing boards of the states and territories, and by the faculties of the medical colleges. 3. The satisfactory passing of examinations, conducted by the licensing board of the state or territory within whose bounds the candidate expects to practice. The opinion was expressed that the time was not yet ripe for reciprocity between the licensing boards of the various states and territories.

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MODERN RESEARCH AND GASTRIC ULCER.

CERTAIN old-fashioned conditions are being analyzed and criticized by the searchlight of modern pathologists, bacteriologists, surgeons and physicians. The old adage that "many hands make light work," applies particularly in medical research. Life is so short, and science, as well as art, is long; so a group of workers may do far more work proportionately than an isolated observer working here and there. Medical societies are encouraging with wise forethought expositions of various vexed problems by men gathered from various sources, who are looking at the same subject from different standpoints. This is the age of co-operation, as well in medicine as in business, or the trades.

No subject deserves more careful, thoughtful investigation than that of gastric ulcer. The stomach itself, despite its shorn reputation, is still a most marvelous organ, viewed from any standpoint, especially so when a pathological condition develops.

The Philadelphia County Medical Society recently held a special session on the subject of gastric ulcer, in which many definite facts were produced. This form of ulcer usually single, is found most frequently on the posterior wall of the stomach, near the lesser curvature. In seven hundred and ninety-three cases collected by Welch, he found two hundred and eighty-eight cases or thirty-six per cent. on the lesser curvature, two hundred and thirty-five cases or thirty per cent. on the posterior wall, while ninety-five cases or twelve per cent. were at the pylorus, only nine per cent. on the anterior wall and only four per cent. on the greater curvature. The ulcer occurs at all ages; in a summary by Siegel, the cases are fairly well divided as to age; as to sex, observers vary greatly. Many authors believe the disease more common in women, but the proportions vary tremendously. Chance undoubtedly plays an important rôle in the incidence of this disease.

Again, such factors as occupation are most indefinite—cases occur in all walks of life—a few observers have tried to force conclusions as to certain towns and countries; for example, Miller and Starcke have found gastric ulcer very common in Thuringen, being seen in ten per cent. of the cases that came to autopsy, while in Munich, Nolte only found it in one per cent. of cases in seven years, and at Johns Hopkins Hospital, Osler only found nine cases in a thousand autopsies.

The interesting feature is the question of etiology; here again we meet much that is obscure. McFarland recognizes eight probable sources: the traumatic theory either internal or external, the acid theory, the alkaline theory, the hemorrhagic theory, the vascular theory, stagnation of the gastric contents, nervous theory and infection. There are certain features that favor each of these theories and each has firm supporters. Thus Virchow favored the vascular theory, that the condition was due to obstruction of the small nutrient vessels by thrombi or emboli. Panum was able to produce such embolism and saw typical ulcers follow.

Parry taught that diminished alkalinity of the blood predisposed to attacks upon the mucous membrane of the stomach by its acid contents. McFarland's conclusions are most excellent in this connection, for he writes "it seems justifiable to conclude that gastric ulcers may arise from numerous and very different causes, though in all probability such ulcers are not identical with those known to clinicians as the round ulcer or peptic ulcer. The etiology of this particular lesion seems to require the co-operation of two factors: (1) the corrosive gastric juice and (2) a local loss of resisting power in the tissues with which the juice comes in contact. (1) *The gastric juice*, should our assumption regarding the diminished resisting power of the tissue be correct, need have no abnormal composition and need not be excessively acid, so that it can be dismissed as no more than an incidental factor in the production of the lesion. (2) *The lost resisting power of the tissue, therefore*, becomes the essential factor. This cannot be common to the whole gastric tissue, else the lesion could not be local. It must be focal, and, therefore, must depend upon some condition operating upon a circumscribed area of the tissue. It seems very improbable that it can be traumatic since experimental, operative and accidental lesions of the stomach heal so kindly in most cases. It must, therefore, be nutritional and vascular, whether the vascular disturbance depends upon traumatic injuries of minute vessels resulting from overdistention, pressure, embolism, thrombosis, infection, intoxication or defective innervation, remains to be shown. It is not improbable that all of these have to do with particular cases. The nature of the defective tissue resistance is obscure and will probably elude our efforts to discover it, as the normal immunity of tissue so long has done. In the light of our

modern studies, one no longer refers the immunity of the gastric mucosa to the alkaline mucus that covers it or to the alkaline blood circulating in its capillaries. It is simply the immunity of the normal living tissue to its own products. So soon as the vitality of the tissue is disturbed, this immunity fails in part; when it is lost it disappears. If we refer the immunity of the stomach to the action of pepsin to the alkalization of the hydrochloric acid by the blood salts, how shall we explain the immunity of the intestine to trypsin which is active in alkaline media? Both are due to the natural immunity of the respective cells to the respective enzymes, and the nature of this natural immunity is unknown."

There are few diseases so difficult to diagnose as gastric ulcer, as Howard points out. In the first place, the disease may run an absolutely latent course until death ensues either from some intercurrent affection or from one or other of the complications or sequelae of the ulcer itself. Again, a diagnosis may have to be made purely upon the subjective symptoms of the patient, or what is very little better, upon a history of vomiting of blood. Patients' statements in the vast majority of cases are absolutely unreliable. It is so easy for the untrained eye, nay, even the trained, to mistake for blood various pigments in the vomitus or stools. Further, no *single* symptom, even hematemesis, is diagnostic. There are three symptoms necessary to determine the presence of an ulcer: (1) pain felt in a localized area on palpation or recurring in paroxysms depending upon meals, (2) hematemesis, (3) hyperchlorhydria. Yet hyperchlorhydria is by no means the rule. In regard to vomiting of blood, many physicians consider it a positive sign. But we first have to establish the fact that the suspected material is blood. This is easy when the hemorrhage is bright red in color or in dark clots; when the amount is small and the blood has been acted upon by the gastric juice, the difficulty arises. Microscopic examination may reveal the presence of red corpuscles or their shadows. If this be negative, one has to resort to some chemical test. Einhorn and others recommend Weber's Test for this object, and especially for the detection of occult or concealed hemorrhages in apparently normal stools. It consists in mixing the suspected material with a few cubic centimeters of glacial acetic acid and then shaking thoroughly with sulphuric ether. If blood be present, the extract becomes a Tokay wine color. If the color be not distinct, add to the above ethereal extract equal parts of tincture of guaiacum and ozonized oil of turpentine; a bluish violet color will result if hemoglobin be present, a reddish brown if absent. Raw or even boiled meat may cause this reaction. Now having determined the presence of blood, we have to exclude other possible sources than simple ulcer, as the carcinomatous and tuberculous forms or even simple erosions: also varices in cirrhosis

of the liver, and hemorrhage from the buccal cavity.

When it comes to treatment, undoubtedly Leube's methods are far in advance of anything we have at our hands for this condition. The chief features of his method consist in the regular use of poultices and cold water compresses, the internal use of Carlsbad water and a carefully regulated diet. Medication becomes a secondary and often a non-essential feature. Rest in bed is also a vital feature in the treatment. Leube is most particular about his directions; they are as follows:

The patient is put to bed and kept there for ten days. On the first day the epigastrium is carefully washed with alcohol and sublimate solution; an ointment of boric acid spread upon a cloth is then applied to the same region, and over the cloth a hot flaxseed poultice about 20 cm. long by 10 cm. wide. The poultice is changed every fifteen minutes and is kept applied for from ten to twelve hours during the day. At night a cold water compress is substituted for the poultice, the cloth spread with ointment being interposed between the compress and the integument. The boric ointment dressing is changed but once in the twenty-four hours. An occasional effect of these continued hot applications is the formation of vesicles which rarely suppurate and invariably heal as soon as the dressings are discontinued. As a result of this topical treatment both the gastric pain and the epigastric tenderness disappear with remarkable regularity, about the fifth day. In the exceptional cases in which the pain persists the poultices are continued (during the day) for five days after it has ceased. From the above it is evident that, in the majority of cases, the poulticing is kept up for ten days. After the cessation of the poulticing a cold water compress is applied at night for three weeks while, during the day, the patient wears an abdominal bandage of flannel. After meals during the convalescent period, rest in the recumbent posture for one or two hours is enforced, and the patient is strictly forbidden to make any exertion or to pursue any occupation, such as sewing or knitting, which involves the bending forward of the trunk.

There are certain contraindications to the employment of poultices, one of which is the recent occurrence of gastric hemorrhage. Leube's rule is not to apply poultices unless three months have elapsed since the last hemorrhage. In such cases the cold water compress is substituted and even this is withheld unless eight days have passed without hemorrhage. The term hemorrhage, be it remembered, is not synonymous with hematemesis. To determine the presence or absence of hemorrhage, the feces should be carefully inspected. When hemorrhage is present at the beginning of the treatment or within eight days thereof, an ice bladder is first applied, to be replaced later by the cold water compress. Another contraindication to the employment

of poultices is the occurrence of menstruation.

From the beginning of the course of treatment the patient is placed upon the use of Carlsbad water which should be swallowed in the morning before breakfast, neither too hot nor too cold, taking ten to fifteen minutes to complete the operation. Nourishment is given five times daily, principally being boiled milk.

Henry has employed Leube's method in a modified way, which consists in nourishing the patient during the first week of treatment either entirely or partially by rectal enemata and in the use of opium or its derivatives.

As to the surgical treatment of gastric ulcer it is uncalled for as a rule. Leube claims that in from 75 to 96 per cent. of cases it is worse than useless, for the patient can be cured by other means. Surgery is indicated only when some crisis is impending. Hemorrhage should be treated by medical means until they prove ineffective but operate as a rule after a third or fourth severe hemorrhage. Rodman suggests after the second. The abdomen should be opened with the expectation of doing that operation which seems best to fill the indications with the least risk. Gastro-enterostomy is generally chosen.

It is well to remember that in sixty per cent. of cases of gastric carcinoma there is a previous history of ulcer, thus May, in 157 cases of carcinoma, found this proportion to exist.

THE SURGICAL USE OF SCOPOLAMINE.

IT would be an interesting investigation for a reader with plenty of time on his hands to take a full copy of one of our great Sunday papers and learn what percentage of truth its articles contain. Frequently we fear the percentage will prove to be very low. For example, recently one metropolitan paper had a livid article on Japanese bronzes, filled with remarkable statements. Each statement was founded upon the experience of some great collector of bronzes, who was mentioned by name. An inquiry directed to each man brought forth the fact that the statements were either entirely untrue or else so distorted that they were wholly misleading. Beyond paying the board of some ingenious writer the article was absolutely worthless.

Especially is the subject of medicine unfortunate when it falls into the hands of the writer of special articles. All "ifs" and "buts" are blue penciled and the busy gleaner of facts decides at a glance questions over which great minds have been honestly divided for decades. So the profession and the public must take all medical advances as heralded in the daily papers with whole handfuls of salt, for the proverbial pinch will be insufficient.

In the past few weeks the readers of the Sunday papers have learned that a new drug, "scopolamine,"

has been discovered which renders ether and chloroform as out of date as the stage coach and the canal boat. There is no danger in the use of this drug we are solemnly assured and in a few days every surgeon will be using it, for it will make surgery child's play or even a source of an afternoon's pleasure.

The unpleasant feature of such an article is that it is accepted by the public, hook, line and all, and unfortunate surgeons are kept busy explaining why they are not using it and resisting the impression that they are behind the times. On the contrary scopolamine is not a new drug, although just admitted officially into the U. S. Pharmacopoeia. It is named for an Italian physician Scopoli, who described it as far back as 1871. It was described by botanists as a common plant of Bavaria, Austria and Russia, resembling belladonna in leaf and flower. Its alkaloid scopolamine is found in other plants of this group, especially in belladonna, hyoscyamus and stramonium. It is apt to contain atropine, another powerful alkaloid; in fact by some authorities, it is believed to be a mixture of hyoscyamine hydrobromide and atropine hydrobromide. Shoemaker in a recent paper on this subject in the *New York Medical Journal* calls attention to this fact as explaining its diversity of action. Instilled into the eye, dilatation of the pupil follows with complete temporary paralysis of accommodation, but it varies from atropine in the fact that it does not increase intraocular tension and its mydriatic action is shorter on the circulator and the nervous system; it differs widely from atropine; it does not affect the respiration; small doses slightly increase the blood pressure while large doses decrease it. It diminishes cerebral activity, narcosis and coma being produced by large doses. A marked depression in the spinal cord appears and profound relaxation of the voluntary muscular system. It is extremely toxic; as far back as 1889 Morton reported serious symptoms from the use of grain 1/75, and unfortunately it seems to be far more active in some organisms than in others.

In 1900 Schneiderlin suggested its use in surgery, combined with morphine, injected near the field of operation or along a nerve trunk. The dosage as laid down by Korff is 1/10 milligram of scopolamine and 25 milligrams of morphine divided into three doses, one injected two hours and a half, one an hour and a half and the last thirty minutes before operating. It is claimed that if it is not desired to depend on this drug alone, that these injections reduce psychic excitement and facilitate other anesthesia.

As yet this drug has not been used sufficiently for us to draw definite conclusions but it is to be feared that it will soon drop into oblivion for apparently the risks are not worth whatever apparent advance the drug possesses, but this will not deter the Sunday paper writer; he will go merrily on to the next promising

topic like the ever active humming bird and probably he will forget his optimistic words and statements as thoroughly as does the plumed traveler forget the dainties presented by last year's flowers.

FOOD AND MEDICINE.

WHOLESONE foods are nutritives, and nutrition of the body conducts and establishes its cure when sick. Nutrition is the balance wheel of vital functions; the true reconstructive in disordered or diseased conditions. In yet ampler phrase, the therapeutic values of food hold highest rank among the marvellous and brilliant battalions of drugs that volunteer curative service for the general physical ailments of humanity.

The time is not remote when in medical treatment of the sick the drugs employed were relied on as the curatives, while the vitalizing nutritives were by routine severely enjoined as prejudicial,—this to the unpardonable injustice and detriment of the patient. Medicine has required the luminant of not only a restudied physiology, but of a clarified philosophy to establish the normal advance of the Healing Art, and of the human rights of patients when striving with physical depression incident to disease. The equivalents between waste and repair must be sustained to hold the field and repulse the foe.

In reading over reported cases, particularly described, and from which was anticipated agreeable results of elaborate therapeutic formula prescribed for treatment, it has seemed like the chagrin of acute irony for the interesting narrative to close the prospect somewhat like this: "Although the allowance of food had been carefully restricted, a single indiscretion in diet resulted in sudden relapse, and the patient succumbed." Perhaps the mournful end came on the tenth or the twentieth day of illness. If the liberal allowance of food was by doctor and by nurse considered antagonistic to the pharmaceuticals employed to combat the disease or to bridge the emergency,—or even considered incompatible with a weakened state of digestion,—between the depression or exhaustion by disease and the systematic restriction of food, for how many days would the vital energies be expected to withstand the doubled sapping of life's dwindling forces? How is the bared and denourished mortal system to safely carry, successfully digest and eliminate the regularly-repeated doses of foreign chemical impedimenta introduced as medicines, without the modifying and liberally supporting co-operative nutritives that well-chosen and plentiful food can normally furnish?

The medicaments may be veiled with some dreamy narcotic; the blood may be transposed by the metatasis of iodides or bromides or coal tar chemicals; the

lymphatics and nerves may be freighted with the encumbrance of a score of high-praised and valuable combines, to say nothing of the riot of mercurials and alcohol;—but, without the stay and sustenance of an ample and refreshing float of vitalizing foods, would it not be expected that the toxemia of disease and the toxemia of medical compounds together bear heavily with their systematic aggression against the reinstatement of normal health? Patients generally, of whatever age, with whatever disease or physiological situation they are confronted, need logically and essentially the most generous scope of reasonable diet that their relish will admit, to tone and strengthen digestion, to aid and promote prompt restoration of the vital functions to healthy condition, and thereby to enable the patient to outflank vital depression and its drift to dissolution.

Results are stronger than doctrinal assumption about arbitrary restrictions in diet. Successful results should be conclusive when on the normal side of demonstration. If the physician who gives his patient the advantage of food adjuvants,—all arbitrary diet restriction theories to the contrary,—but who experiences the satisfaction of seeing his patients make unusually prompt and substantial recoveries, he may rely on the good sense of his methods and sleep with restful mind and nerves as regards his reputation among his grateful clientele. All in all, we treat patients to cure them, we do not practice medicine to exploit the physiological properties of chemicals. Chemicals may serve as our crutches, our aids, our palliatives of acute distractions, but the nutriments of wholesome foods are our saving ordinances, our vital sustainers, our natural components of normal functions in the economy of life.

On broad principles, what the body needs seriously in sickness as well as in health is restorative food—food to confront its wants and every variety of its wants—reconstructive, reparative, relishable, defensive nutrition. Any set formula, any limited article, any routine cook-book catalogue of rules are but like chaff and stuff as compared with the awakened odd taste and systemic relish that make food not only an available adjunct but a saviour of imperiled life. Because of the prohibitive wisdom of attending physicians there have been many women half-starved into prolonged debility after child-birth. A practical-minded accoucheur was early taught his conservative lesson in successful and happy getting-up after labor in this wise. At his visit the day after delivery, his young patient smilingly said: "Doctor, do you think it would hurt me to have some potpie?" He studied a moment. He mentally analyzed the problem of potpie. What was it? A little dough made of flour, milk and egg; a few fibres of meat and a bit of white potato, and a juicy water gravy of this compound—a simple nutriment. "You are so well, I do not think a little potpie would harm you," he

replied. "Very well," rejoined his delighted patient, "I wanted to ask you, for I was hungry and I ate pot-pie for dinner, and I don't feel any the worse for it." This woman's liberal diet throughout enabled her to "get up" from child-bed so strong and well, that this physician ever after, for forty years, held to the wisdom of sustaining all patients after child-birth with the refreshment of liberal foods, including obtainable fruits.

A decade ago, a little girl, then ten years of age, was burned to a crisp around her thighs, nates and back to waist, by her clothing taking flame at a boys' bonfire on an open lot. Death seemed but a question of hours. Her immediate fever created intense thirst, which the physician took advantage of for the free administration of stimulants in the form of tap ale and whiskey, which she continually craved. As she lived on from day to day, the doctor urged that she switch off to more normal drink. She turned to large quantities of milk for about ten days. She next took a fancy for "solid food." The only thing she craved was fat pork and radishes—which she eagerly craunched as though they were apples. For two weeks she lived solely on this diet, but holding to milk for drink. Though she sloughed pints of pus she yet lived. Later on, her relish changed to desire for beef, and gradually, she resumed the usual forms of home diet. She was desperately ill for a year, but eventually healed and recovered. Her starter to sustain life after the whiskey and the ale was the exclusive diet of fat pork and radishes. A physician of ingenious comprehension a few years ago was called to a case of exhausting diabetes with serious stomach complication that rejected all food and drink. All he could hope for was that his new patient might temporarily rally. With the aid of medicines, after days of failures, sauer-kraut proved acceptable to the stomach and started the course for better foods. The lady, who was past middle life, improved sufficiently to devote two years longer to mission work among slum people in her city. The wisdom of selection does not always depend on the doctor, but on the receptivity and suggestion of the patient's system as expressed by the hint of relish. There are many crises where drugs alone can never cure, but where nutrition saves.

Quantity at a meal does not count in the problem of nourishing the sick—since the quantity taken at one time is usually so small that frequency becomes the more necessary. The cardinal condition is that too much dependence be not hung on the therapeutics employed. The wonderful varieties of wholesome foods at command will safely supply invaluable adaptations to idiosyncrasies of tastes and needs of individuals. Next to pure air the comfort of food is the greatest friend known to humanity. In cases of any continuance, even the best medicines, non-vitalizing compounds, achieve best results if floated through the blood and disordered

tissues and organs on an abundant tide of vitalizing nutritives necessary for reconstruction and healing. Of all creatures under the sun, growing children need most liberal variety of food, that there shall be no starving or malnutrition in any department of the constructive work-house of their bodies. Delicate, puny children, restricted by rule and rote to narrowed regime, are no credit to the misguided wisdom of the parent, and often bear in deformity through life the image of the atrocious limitations that disabled their normal development.

All sick children, especially, should have their little systems and delicate powers abundantly sustained with helpful foods, and with whatever wholesome they can enjoy, when battling with the crippling depressions of disease. In their growing months and years, medicine-stuffing without a broadened and welcomed supply of varied diet, is a mockery of discretion, a sin against nature. Whatever the nature of complaint, ripe delicious fruits and melons are invaluable aids to medicines in refreshing a jaded system and restoring nutritive functions. Again, food and nutrition of cells and tissues are the great natural anodyne for restlessness in underfed cases. A sense of need of nourishment is insufferable, even when appetite has deserted and digestion seems suspended. Even the flesh of a ripe peach, the juice of a wine-bearing grape, may coax into action the refreshed digestive process more successfully than would a glass of milk or a platter of porridge when the stomach is sick.

THE TREND OF MODERN PHTHISIO THERAPY.

ON all hands one sees in the present-day treatment of consumption a tendency to consider the constitution of the individual rather than the local lesion, which in this disease is generally pulmonary. There is here really a swinging of the pendulum back to Bodington and Brehmer, back to the therapeutics which preceded Koch's discovery.

It is indeed an odd phase of medicine—that, the specific cause of consumption having been so brilliantly discovered, no means designed essentially for its destruction and elimination has been successful. Nay, worse than this, it is now generally agreed that such therapeutics has been actually baneful. And the statement is true of practically everything of this nature that has been tried since 1882, when the tubercle bacillus was brought to light—inhalants, sprays, eudotrachial injections, expectorants, creosote and all the other nauseating "antiseptics." There are several very cogent reasons why drugs cannot destroy bacilli in the animal body. Among these we refer to the physical law of the diffusion of gases and to the fact that the lungs respire tidal, complemental and residual air.

There are those who, like Duckworth and Bulstrode, have always, through the two decades past, held that

the discovery of the bacillus has not materially changed the tuberculosis situation; that this bacillus is but an index of a disease which is the resultant of many factors. And this no one doubts to-day. Just as we consider that typhoid fever is not an affection of the small intestine, but a general disease, which has its acutest manifestation in Peyer's patches, or that Bright's is not essentially a kidney disease, so have we concluded that tuberculosis is a systemic disease which manifests itself especially in the lungs.

We think then, with Hutchinson (*Medical Record*, April 29, 1905), that it were best to treat the constitution of the consumptive, and "let the lungs alone." Particularly does he decry (and we believe he is correct), loose and unregulated "pulmonary gymnastics." At Saranac Lake Trudeau's patients rest; gymnastics are eschewed. Forced breathing may drive the infectious material still deeper into the lung parenchyma; regions as yet unaffected may thus become involved. New-formed connective tissue, in which the healed tuberculous foci are imbedded, may be broken up, and such steps as nature may be already taking through pleuritic or other adhesions to put the damaged parts at rest may be interfered with. Moreover, it is not logical to think of "developing" the chest of a consumptive by gymnastics. These sufferers, as a rule, have round, not flat chests. Another point is that the circulation is essentially at fault in tuberculosis; the best guide in this disease is the pulse. Here we have harked back again to Brehmer, who found the small heart characteristic of the tuberculous.

The safest therapeutics, in the present stage of this branch of our science, is then as follows: The disposition of the infective material. Rest, particularly, with a temperature of 100°; and bed inexorably if it reaches 101°. Fresh air throughout the twenty-four hours, and every possible moment of sunshine. As much nutritious food stuffs as can be assimilated or metabolized. And finally, such medicaments as the physician may direct according to the systemic requirements in each case: for in one patient the circulation may need a drug, in another the stomach, in another the excretory apparatus, and the like.

ALCOHOLIC NOSTRUMS.

THE internal revenue department of the federal government purposes to put in force a very just measure; it will tax nostrums containing alcohol, just as it does brands of whiskey. Lest the reader considers this a harsh measure he should peruse the list of Tonics and Bitters which the Massachusetts State Health Department examined for the purpose of ascertaining the percentage of alcohol in each. Among these, Parker's Tonic, "purely vegetable," recommended for inebriates, contained 41.6%; Atwood's Quinine

Tonic Bitters, 29.2%; Boker's Stomach Bitters, 42.6%; Drake's Plantation Bitters, 33.2%; our old friend Hostetter's Stomach Bitters, 44.3%; Kaufman's Sulphur Bitters, "contains no alcohol," does in fact contain 20.5% alcohol and no sulphur. Hooffland's German Bitters, "entirely vegetable and free from alcoholic stimulant," 25.6%; Richardson's Concentrated Sherry Wine Bitters, 47.5%; Job Sweet's Strengthening Bitters, 29%; Warner's Safe Tonic Bitters, 35.7%; Paine's Celery Compound, 21%; and many more to the same effect. When we reflect that the dose recommended upon the labels of these preparations varies from a teaspoonful to a wineglassful, and that the frequency also varies from one to four times a day, "increased as needed," it must be evident that many a pious old humbug (without regard to sex) must from time to time enjoy a "bender" such as would excite the sincere envy of many an honest, unpretentious, out-and-out toper. The proposed measure, if considerably enforced, will certainly bring grief to many thirsty residents of prohibition States. Such medicines, it is declared, are said to have immense sales in prohibition communities. One advertised compound with a high percentage of alcohol (nearly as high as that of whiskey) has achieved a sale of nearly 300,000 bottles in one year in one New England (prohibition) State. Hereafter the harmless remedy, the unfailing catarrh cure, the pure vegetable reinvigorator will be taxed precisely as whiskey is, according to the percentage of alcohol. The manufacturer must pay the tax required of manufacturers of spirits, and the druggist who sells these goods must take out a retail liquor dealer's license. So general has become the consumption of the "medicines" here referred to, especially in sections where straight whiskey is difficult to obtain, that resulting cases of intoxication are known by the name of the medicine causing it. There is said, moreover, to be a very large sale of these "drugs" to Indians on reservations, where liquor is prohibited, and the red man who is observed to behave as one with a "skate on" is characterized as having indulged unduly in some "sure cure for lame back," or "Dr. Quack's Celebrated Kidney Cure." Presumably the Indian Commissioner must follow the ruling of the internal revenue department, so that one of the most prolific sources of revenue to the producers of blends of cheap whiskey and flavoring extracts will be destroyed.

The ruling of the Commissioner of Internal Revenue is a reversal of practice. Heretofore the sworn statements of manufacturers as to ingredients has been accepted. Hereafter this will be determined, not by the declaration of the manufacturers, but by the Government chemists, who will go into the open market and buy proprietary articles under suspicion. By the first of December a list will be made, so that the country grocer who keeps a shelf in general family medicines will learn those which he can carry only by becoming

a liquor dealer within the meaning of the Federal law. The great strength of the patent medicine abuse lies, in fact, in the value of its advertising to country newspapers. Contracts have been made which would become void on the passage of the pure food laws. It has long been the aim of the reformers of these abuses to require publicity for the formula so that opiates and other dangerous mixtures might be revealed. The influence of country advertising has thus far impeded all such legislative effort.

It is a pleasure to note, in this relation, that Dr. H. W. Wiley, the chief of the Bureau of Chemistry at Washington, has been instructed to co-operate with The American Medical Association in its crusade against the sale of impure and fraudulent patent medicines. This order issued to Dr. Wiley is in line with the recent activity of the Post Office Department, in issuing fraud orders against several concerns which advertised their products to contain properties not disclosed in the chemical analysis. This co-operation with physicians (the Association is 47,000 strong) is a most welcome innovation.

MERCIFUL HOMICIDE.

THIS venerable topic of discussion among medical and humanitarian circles is again being ventilated. This time a woman, Miss Helen Hall, has started the ball rolling at a meeting of the American Humane Association in Philadelphia, the proposition being that immediate slaughter should be dealt out to those unfortunate enough to be mortally wounded, or to be suffering with such painful diseases as physicians would consider incurable.

This subject, we repeat, has often come up for discussion in medical circles; and the conclusion has almost invariably been reached by physicians taking part, that to cut short a human life, is, except in one instance, absolutely unjustifiable. The exception is the destruction of the life of the fœtus, when that of the mother is endangered. And even here, a very large religious sentiment, mostly among our brethren of the Roman Catholic faith, requires that equal solicitude shall be shown for the infant, on the ground that its soul is as fully entitled to be conserved as is that of the mother.

Apart from humanitarian considerations, the main objection of medical men to merciful homicide, is one that does them great honor; it is on the ground of their own liability to error in pronouncing a case necessarily fatal. Every experienced and tried physician has found that there have been cases within his knowledge which have demonstrated that prognosis in medicine may be as illusory as prophecy in the general affairs of life. How often has a patient with Bright's, "doomed to death within a couple of years," or a consumptive, "good for but a few months more," lived to attend the fune-

ral of the prognosing physician.

Miss Hall's stand is very like that taken some ten years ago by Mr. Albert Bach before a Medico-Legal Congress held in New York City. This gentleman, a prominent member of the bar, declared that there were cases, not only in which suicide was morally justifiable, but also in which the ending of human life by physicians was not only morally right, but an act of humanity. His views, however, were vigorously combated by the medical men present, principally upon the grounds just set forth. Miss Hall's views are now no less objectionable than were those of Mr. Bach. She declares: "For the past two years I have always carried a phial of chloroform with me when riding on trains for use in occasions of emergency, as I was brought to consider this subject through a horrible experience." For ourselves, we should not like to be on a train with this lady, with the possibility of being, in addition to any hurt we might receive, the subject of her "humane," but inexperienced manipulation of an anæsthetic.

The law, points out the *New York Sun* (Oct. 15, 1905), recognizes no right to take life from motives of humanity, except in the instance we have cited, and relates instances in point: To shorten life is to take life. Indeed, all that a murderer does in killing a perfectly healthy human being, is to shorten that person's life. The courts, both in England and in this country, have repeatedly held that he who accelerates the death of another is guilty of felonious homicide. Even in the case of the birth of excessively deformed infants, the English courts have refused to hold that the attending physician was justified in taking the life of an infant, although the malformation might be so great as to make it a monster in a legal sense.

Heart Strain in Growing Boys is considered by A. Lambert (*Med. Chronicle*, February, 1905), who observes that the passage from physiologic to pathologic distension is abrupt. From protoplasmic inadequacy the muscle fails to respond to increased functional stimulus and nutritive supply. Fibrous hyperplasia and changes in the muscle fibre follow. Thus are explained the symptoms of overstrain produced by mental shock, direct violence or illness. Lambert doubts if the heart of the truly healthy boy ever breaks down as the result of athletics as practised in the great schools; there must have existed some cardiac insufficiency either inherent or due to some such condition as anæmia or recent influenza. Tendency to recurrence is common to all cases. There may or may not be constant symptoms or signs of inefficiency. The prognosis must be guarded and every return to active exercise looked upon as an experiment. The heart may prove strong enough for a life work that does not entail great stress but with not sufficient strength to stand an anæsthetic or some acute illness. A good muscle may compensate for a faulty valve, but there can be no compensation when the myocardium itself is at fault.

BIBLIOGRAPHICAL

The Microtometist's Vade-Mecum.—A Hand-book of the Methods of Microscopic Anatomy. By Arthur Bolles Lee. Sixth Edition. Philadelphia: P. Blakiston's Son & Co., 1905. Pp. 358. Octavo; price, \$4.00.

This standard text-book comes to us in its sixth edition, with a great deal of new matter added, the whole so condensed as not to increase the bulk. The new chapters must be read, in order to obtain a proper comprehension of the book in its present form. The work is so well and popularly known by the profession, that it needs only the announcement of a new edition.

Carbonic Acid in Medicine.—By Achilles Rose, M.D., with the portraits of Van Helmont, Priestley and Lavoisier. New York: Funk & Wagnalls Company, 1905. 12mo; pp. 259. Price, \$1.00.

The subject of this little volume is well worthy the effort of our distinguished author, and he has made the most of it by bringing together all that is known about it, and by adding the results of his own investigations.

The observations on the value of carbonic acid in dysentery, rhinitis, vomiting in pregnancy, and the solution of the problem of curing rectal fistula without operation, cannot fail to interest and instruct the reader. This practical work is worthy a place in the clinician's library.

The Elements of Homœopathic Theory, Materia Medica, Practice and Pharmacy.—Compiled and arranged from Homœopathic text-books by Drs. F. A. Boericke and E. P. Anshutz. 196 pages. Cloth, \$1.00. Postage, 5 cents. Philadelphia: Boericke & Tafel, 1905.

A handy little book for homœopathic physicians.

Exercises in Practical Physiology.—By Augustus D. Waller, M.D., F.R.S. London and New York: Longmans, Green & Co.

This little brochure contains the exercises and demonstrations in chemical and physical physiology suited to the class-room, and every student should have a copy.

The first chapter is devoted to the blood, the second to the circulation, then salivary digestion, the proteids and gastric digestion, and fat and pancreatic digestion are considered. Then follows a chapter on milk, one on urine, and the volume closes with the subject of respiration. The text is concisely and clearly stated, in a manner to be most useful to the student.

Progressive Medicine, Vol. III., September, 1905.

A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 298 pages, with 22 engravings. Per annum, in four cloth-bound volumes, \$9.00; in paper binding, \$6.00; carriage paid to any address. Philadelphia and New York: Lea Brothers & Co., Publishers.

The divisions of medicine herein discussed are: (1) Diseases of the Thorax and Its Viscera, by Prof. Wm. Ewart; (2) Dermatology and Syphilis, by Gotthel; (3) Diseases of the Nervous System, by Wm. G. Spiller, and (4) Obstetrics, by Richard C. Norris.

Each one of these chapters has been treated by its author in consonance with the general aims of the series, but with an individuality which gives it a special and original interest and importance. The subject of

thoracic diseases, which has come to be considered as almost barren of any further important results, since the masters of modern medicine, Trank, Skoda and Bamberger, had practically exhausted the possibilities of auscultation and percussion, has yielded a rich crop of information to a fresh ploughing. Dr. Ewart takes up the newer methods of examination of the heart, in especial radiology, and indicates its bearing on the results of the older methods of percussion and of auscultatory percussion. The workings of the organ, and the co-ordination of its parts, have received an entirely new light from the novel sphygmographic methods of Mackenzie, which permit of a far closer analysis than formerly of the action of digitalis and the other cardiotonics. It seems, in virtue of this work, as though the indications for and against these agents—so potent for ill as well as good—would at last become endowed with the precision so urgently required in practical work. The monometric and plethysmographic methods, as well as the recent results of the older methods, have not been neglected.

The general get-up of the book, the paper, print and indexing, are of a solid and enduring quality, and make its use not only profitable but pleasurable.

Practical Massage in Twenty Lessons.—By Hartvig Nissen, Instructor and Lecturer in Massage and Gymnastics at Harvard University Summer School. Author of Swedish Movement and Massage Treatment, etc. With 46 Original Illustrations. 168 pages. 12mo. Price, extra cloth, \$1.00, net. F. A. Davis Company.

This little book is the result of the author's thirty years experience as a masseur and teacher. His method is a combination of what he has found to be the best and most useful "manipulations" and "movements" in other systems as well as his own. The book will be found a practical help to those who use this treatment.

A Text-Book of the Practice of Medicine.—

By James M. Anders, M.D., Ph.D., LL.D., Professor of Medicine and of Clinical Medicine at the Medico Chirurgical College, Philadelphia. *Seventh edition, revised and enlarged.* Octavo of 1297 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$5.50, net; sheep or half morocco, \$6.50, net.

A sale of over 22,000 copies and the attainment of a seventh edition seems sufficient recommendation for any book; in fact, Anders' Practice does not now need any recommendation—it is too well known. As in the former editions, particular attention is bestowed upon inductive diagnosis, differential diagnosis, and treatment. Regarding differential diagnosis, we notice with much satisfaction that the many diagnostic tables of simulating diseases have been retained. The clinical value of these tabulated points of distinction is beyond cavil. Numerous new subjects have been introduced, among which are: Rocky Mountain Spotted Fever, Examination of Patients for Diagnosis of Diseases of the Stomach, Splanchnoptosis, Camidge's Test for Glycose in the Urine, and Myasthenia Gravis. Certain other individual affections have been entirely rewritten and important additions have been made to the diseases which prevail principally in tropical and subtropical regions. The seventh edition maintains the reputation of the work, and continues to keep it in the very front rank of works of its class.

A Text-Book of Diseases of Women.—By Barton Cooke Hirst, M.D., Professor of Obstetrics, University of Pennsylvania. *Second edition, revised and enlarged.* Octavo of 741 pages, with 701 original illustrations, many in colors. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$5.00, net; sheep or half morocco, \$6.00, net.

Dr. Hirst may well be congratulated upon the publication of such a work as this, a second edition of which has just appeared. Written on the same lines as his "Text-Book of Obstetrics," to which it may be called a companion volume, it gives every promise of attaining a similar success. The palliative treatment of diseases of women and such curative treatment as can be carried out by the general practitioner have been given special attention, enabling physicians to treat many of their patients without referring them to a specialist. Indeed, throughout the book great stress has been laid upon diagnosis and treatment, and the section devoted to a detailed description of modern gynecic operations is without doubt the most clear and concise we have yet read. In this second edition the revision has been thorough, introducing, however, only such matter as promises or has been demonstrated to be of permanent value. Forty-seven new illustrations have been added and thirty of the old ones replaced, the work now containing a collection of seven hundred and one beautiful original illustrations, many of them in colors. The book can be highly recommended.

Abdominal Operations.—By B. G. A. Moynihan, M.S. (London), F.R.C.S., Senior Assistant Surgeon to Leeds General Infirmary, England. Octavo of 695 pages, with 250 original illustrations. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$7.00, net.

This elaborate work devoted exclusively to abdominal operations common to both sexes, will be welcomed by the profession for the reason that the details of the operations are given in such clear and exact language as well as the actual *modus operandi* of the various operations, the clearness of description being a strong point in the text. The author's reputation is international, his work is stamped with the authority of great experience, so that we may predict for it a place at the top.

Peritonitis and appendicitis, the latter of such present importance, have been accorded unusual space in a work of this kind; and the subject of chronic gastric ulcers is also excellently detailed. Throughout the entire book numerous cases have been quoted from both the author's own practice and those of other distinguished surgeons. The beautiful illustrations are all new and have been drawn especially for this work under the author's personal supervision. The book is a valuable production and adds greatly to the reputation of its eminent author.

Atlas and Epitome of Diseases of the Skin.—

By Professor Dr. Franz Mracek, of Vienna. Edited, with additions, by Henry W. Stelwagon, M.D., Professor of Dermatology, Jefferson Medical College, Philadelphia. *Second edition, revised, enlarged, and entirely reset.* With 77 colored lithographic plates, 50 half-tone illustrations, and 272 pages of text. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$4.00, net.

It is with much pleasure that we welcome the second edition of Professor Mracek's admirable hand-atlas.

That the work is a success and of practical usefulness needs no further proof than the demand for a second edition, not only in America but also in Germany. The author has added some twenty-six new plates, fifteen of them colored lithographs, and all of exceptional merit. The text he has thoroughly revised to include the most recent dermatologic advances, especially along the line of histopathology. As in the first edition, there is evidence of the conscientious editorial work of Dr. Stelwagon, many additions being interspersed throughout the text.

A Manual of the Practice of Medicine.—By A. A. Stevens, A.M., M.D., Professor of Pathology in the Woman's Medical College of Pennsylvania, and Lecturer on Physical Diagnosis at the University of Pennsylvania. *Seventh Edition, Revised.* 12mo of 556 pages, illustrated. Philadelphia and London: W. B. Saunders & Company, 1905. Flexible leather, \$2.50, net.

There is no work on practice of the same size containing more practical information concisely stated than this handy little book. The author's epigrammatic style is no doubt the result of his extensive experience in the lecture room, enabling him to group allied symptoms in such a manner that they can be easily retained in the mind of the student. By a judicious elimination of theories and redundant explanations he has brought within a small compass a complete outline of practice of inestimable value. For the student, the practitioner, and the nurse as well, there is none better.

Lectures Upon the Principles of Surgery.—With an Appendix Containing a Resume of the Principal Views held Concerning Inflammation. By Charles B. Nancrede, M.D., LL.D., Professor of Surgery and of Clinical Surgery, University of Michigan, Ann Arbor. *Second edition, thoroughly revised.* Octavo of 407 pages, illustrated. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$2.50, net.

The difficulty with the great majority of works purporting to treat of the principles of surgery is that they attempt to be too comprehensive, so marring their usefulness to the undergraduate. Dr. Nancrede, whose work is now before us, has studiously aimed to overcome this objection, and has met with unqualified success. His work is not a new one, but for some years has held a place of first importance amongst medical text-books. The appearance of this edition, therefore, will be a source of much gratification to those who have found the work so valuable. Much has been added regarding the significance of leucocytosis, the treatment of sepsis and of tetanus, and the after-effects of general anesthesia and spinal anesthesia. By rewriting some portions and by greatly modifying others, Dr. Nancrede has brought his excellent work to a degree of perfection only attainable by the careful observation and study of a rich clinical experience.

A Text-Book of Clinical Diagnosis.—By Laboratory Methods. For the use of Students, Practitioners, and Laboratory Workers. By L. Napoleon Boston, A.M., M.D., Associate in Medicine and Director of the Clinical Laboratories at the Medico-Chirurgical College, Philadelphia. *Second edition, revised and enlarged.* Octavo of 563 pages, with 330 illustrations, including 34 plates, many in colors. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$4.00, net; sheep or half morocco, \$5.00, net. It must be a great gratification to an author when two

editions of his work are required in one year. From such a reception it is evident that Dr. Boston's Clinical Diagnosis fills a demand. In this new second edition many new subjects have been added, including Biff's New Hemogelometer, Ficker's Reaction, an illustrated description of the Leishman-Donovan Bodies, Ravold's Test for Albumin, Cammidge's Test for Glycerin, and Cipollino's Test. The subjects of cystodiagnosis and inoscopy are given more extended consideration, the practical usefulness of these methods having been clearly demonstrated. Throughout the text it has evidently been Dr. Boston's aim to emphasize in progressive steps the various procedures of clinical technic, illustrating such steps whenever possible. An unusual amount of space is given to the consideration of animal parasites, malarial and other blood parasites, skin diseases, transudates and exudates, and the secretions of the eyes and of the ears.

A Compend of Histology.—By Henry Erdmann Radasch, M.S., M.D., Associate in Histology and Embryology in the Jefferson Medical College, Philadelphia, etc. With ninety-eight illustrations. Philadelphia: P. Blakiston's Son & Co., 1905. Pp. 304. Price, \$1.00.

This adds another to the list of excellent quiz-compend issued by Blakiston. The volume is more complete than some and the text is clear, concise and up-to-date. The chapter on Technic is sufficient for routine histologic and pathologic work. There is no question as to the value of the book to students.

A System of Physiologic Therapeutics.—A Practical exposition of the methods, other than drug-giving, useful for the prevention of disease and in the treatment of the sick. Edited by Solomon Solis Cohen, A.M., M.D., Senior Assistant Professor of Clinical Medicine in Jefferson Medical College; Physician to the Jefferson Medical College Hospital, and to the Philadelphia Jewish and Rush Hospitals, etc. Volume VII., Mechanotherapy and Physical Education, including Massage and Exercise. By John K. Mitchell, M.D., Fellow of the College of Physicians of Philadelphia; Physician to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, etc.; and Physical Education for Muscular Exercise, by Luther Halsey Gulick, M.D., Director of Physical Training in the Public Schools of Greater New York, etc. With special chapters on Orthopedic Apparatus by James K. Young, M.D.; on Corrective Manipulation in Orthopedic Surgery, by H. Augustus Wilson, M.D.; and on Physical Methods in Ophthalmic Therapeutics by Walter L. Pyle, M.D. With 229 illustrations. Pp. 420. Octavo. Volume VIII.—Rest Mental Therapeutics Suggestion. By Francis X. Decrum, M.D., Ph.D., Professor of Nervous and Mental Diseases in the Jefferson Medical College of Philadelphia; Neurologist to the Philadelphia Hospital, etc. Philadelphia: P. Blakiston's Son & Co. 1904. Pp. 332. Octavo.

The general title of these volumes suggest but imperfectly the scope and the character of their contents. The main theme in Vol VII. is that treated by Dr. Mitchell, but the other subjects need full consideration in a work of this kind and their relations with the use of exercises and manipulations of the tissues are sufficiently evident to justify the association. An example of this intimate connection, the subject of Spinal Curvature may be cited. The origin of this affection

frequently may be traced to faulty position at the school-desk, this in turn sometimes depending, in part at least, upon ocular defects. Educational gymnastics and correct glassing may prevent the occurrence of curvature, while massage, remedial exercise, orthopedic apparatus and corrective manipulations all play a part in the treatment of its various forms and degrees.

Another example may be drawn from headache, which if it is sometimes to be treated by massage, may be prevented in other cases by the exercise that restores digestive tone or improves faulty metabolism, while in still other instances it disappears when eye-strain is corrected. For the relief of eye-strain and the manifold symptoms to which it may give rise, not only refractive correction is needed, but often suitable exercises must be prescribed for the ocular muscles.

Exercise as a therapeutic method has suffered so much discredit from the wild theories and the fantastic and exaggerated overstatement of its value by excited enthusiasts, that any one who would write usefully on it must constantly endeavor to make his work not only precise and scientific, but modest and rational in its claims and practical in its methods. It is proper to say that there is almost no form of application of exercise or manipulation to the treatment of disease or to the maintenance of health considered in this volume in which the authors have not had practical experience to guide them.

Volume VIII. is largely devoted to the important subject of Rest in physiologic therapeutics—often called "Rest Cure."

The author has endeavored to present the subject in a systematic manner. Simple physiologic truths and clinical facts have, so far as possible, been placed side by side, together with logical deductions in regard to treatment. In the section on mental diseases the author has considered the question of treatment in all its phases, laying stress on the importance of simple physiologic methods, while to medicines has been assigned a secondary value.

The concluding section of the book deals with a topic of the greatest moment in the treatment of nervous and mental diseases, and which has an important bearing upon the management of the sick in general. The author discusses the influence of the mind and its utilization in medicine, under the head of "Suggestion," in its various forms. The facts have been impartially set forth, submitted to scientific analysis and the conclusions frankly stated, avoiding as far as possible the purely theoretic consideration. These volumes will be found of inestimable value to the clinician who does not confine his treatment to the mere use of drugs.

The strenuous life was recently realized by a "New York specialist," states the lay press, who while riding at night in the country near Mt. Vernon thought he saw a dead man lying in the road. He excitedly rushed to the nearest telephone and asked to have a police patrol wagon sent, believing the prostrate man to have been murdered. When the police arrived the supposed dead man was gone; whereupon these agents of the law, determined not to be without a prisoner, decided that the physician was intoxicated and "pulled him in" on a charge of having sent out a false alarm. It developed later that the man who had been lying in the road was really drunk and had walked away before the coming of the police.

RETROSPECTIVE THERAPEUTICS

THE ETIOLOGY AND ELIMINATION OF DIABETES.*

Contrary to all accepted authority, the author of this remarkable paper contends that *Diabetes is never a Primary disease*; it is merely, he declares, a frequent concomitant symptom or sequela of either an inherited or acquired condition of the system, which is primary and which is amenable to appropriate treatment as any ordinary disease.

The unsuccessful and unsatisfactory results, which, up to the present time, have attended all proposed methods of treatment, is attributed to the fact that its pathogenesis has not been properly understood.

Derangements of the liver, the kidneys, the nervous system and the spleen have, each, in turn, been considered the offending cause of this most serious affection, and there is probably no case which does not exhibit a lesion of one or more of the organs mentioned. But as the "immediate cause of diabetes is something which interferes with the proper oxidation of certain elements of food, and as the presence of sugar in the urine occurs from, or is accompanied with, lesions in organs differing greatly in structure and function, may there not be some cause, which, owing to an inherent or acquired weakness of one or the other of the organs mentioned, is able so to interfere with its normal action that oxidation is inhibited to a degree sufficient to induce the affection we are considering?"

The author not only believes this view of causation to be correct, but he is satisfied that he has discovered the common cause—"the disturbing element which is responsible for the existence of every case of diabetes, irrespective of the nature or location of the lesions to which it most directly relates."

"This common and potent cause is syphilis—that Nemesis of evil-doers, which ruthlessly invades every organ and tissue of the body and with its blighting touch vitiates every secretion and deranges every function."

"This discovery is not the forced assumption of a theory; it is one of the results of the observations and investigations begun twenty-five years ago and carried on for a long period, for the purpose of discovering the cause of interstitial gingivitis, a suppurative disease of the alveolar process."

"I found that a great many of those afflicted with gingivitis also suffered from diabetes. Finally, I discovered that in all patients affected with interstitial gingivitis, of systemic origin, syphilis, either inherited or acquired, could be traced, and that in spite of careful and thorough surgical and dental treatment, a permanent cure could not be effected until the patient was subjected to a course of anti-syphilitic treatment."

The diagnosis cannot always be satisfactorily made from the history of the case, but "fortunately, there are ways of determining the existence of syphilis independently of any history the patient may give. Syphilis never invades the system unaccompanied by tell-tale signs of its presence. The most important and reliable of these signs are, first,* the eschar of Curtis, which may

be seen upon the surface of the gums, cheeks, tonsils, pharynx, and, sometimes, upon the cornea and sclera, and, second, the syphilitic spores which the microscope reveals in the freshly-drawn blood. The latter sign is of special importance, because the presence of the spores is not only positive evidence that the suspected disease exists, but their disappearance, later, under the influence of appropriate treatment, is indisputable proof that the specific poison has been eliminated, and, consequently, that the treatment may be safely discontinued."

"Since diabetes is never a disease *per se* but merely an occasional accompanying symptom or sequela of syphilitic infection, the best treatment is that which will most readily and thoroughly eliminate the specific poison which caused it."

The most reliable and satisfactory treatment is that supplied by electro-ozonation. A brief outline-description of the apparatus which supplies electro-ozone is given. It "consists, practically, of an ozone generator fed by a high tension coil which multiplies the voltage of the commercial current a million or more times, and practically eliminates all amperage. To the generator is attached brushes or corrugated wires from which ozone is generated in large quantities, and, by a wire coil, a Geisler or other vacuum tube is connected through which ozone is forced into and through the body. Connected with the apparatus is an electric cabinet which generates light and heat coupled with ozone."

Although treatment by electro-ozonation, alone, is able to eliminate every vestige of syphilitic taint from the system, still, in order that the patient may have the benefit of the eliminative effects some drugs are able to produce, such alternatives as mercury and iodide of potash and such tonics as iron and veratum viride, are generally prescribed in addition.

While the doctor is convinced that anti-syphilitic treatment by drugs alone is sufficient, in many cases, to eradicate both syphilis and diabetes in their initial stages, he is satisfied that a large percentage of such cases is incurable without the aid afforded by the ozone current.

During the past seven years, twenty cases have been treated by the method advocated. "All of them had either acquired or inherited syphilis. With the exception of two, all were restored to health with every symptom of diabetes eliminated. Of these exceptions, one was lost sight of, and the other was suffering from epithelioma. The average time required to bring about this result was about three months. The sugar usually disappeared from the urine by the end of the second month. In only one of the cases successfully treated has there been any return of the sugar or of any other symptom. In this case, after several days of high living and alcoholism, a mere trace of sugar was discovered. "Otherwise, the patient who, when first treated, was invalided and whose urine contained nine per cent. of sugar, is now in robust health."

This result, in the opinion of the doctor, is sufficient not only to substantiate his claim that he has discovered the real cause of diabetes, but also to demonstrate that this affection need no longer be considered incurable.

In regard to the restrictions of diet so irksome to the patient but so universally believed to form an indispensable part of all successful treatment, the doctor, under the method of treatment he pursues, finds them entirely unnecessary.

"Allowing," he says, "that the sugars and starches

*An abstract of a paper read before the American Electro-Therapeutic Association by G. Lenox Curtis, M.D., New York.

*This infallible diagnostic sign of syphilis was discovered by me over fifteen years ago. I fully described it in a paper entitled "Syphilitic Localis Alveolaris," which was read before the American Medical Association in 1898.

are the food elements from which the system derives the greater part of its vital energy, it seems to me that their restriction is more prejudicial to an invalid than to a person in a state of health. Under no circumstances do I enjoin my patients from using the carbo-hydrates freely, and it is to this fact that I attribute their comparatively rapid recovery; for so great is the nutritive power of electro-ozonation over the processes of digestion, assimilation and elimination, that, under its influence, the system is able to derive all of the nutritive benefits these highly important foods are able to bestow."

In conclusion, the doctor urges physicians "to test this method of treating diabetes." If electro-ozonation is not available, use the ordinary anti-syphilitic treatment; but if the two can be used conjointly, the desired results will be not only more satisfactory, but more speedily attained.

Angina Pectoris, a dreadful though happily somewhat rare disease, is characterized by sudden paroxysms of agonizing pain over the cardiac region, extending into the arms and up the neck. A fear of impending death accompanies this "breast pang," a condition not a disease in itself, and one symptomatic of a number of morbid conditions, such as insufficiency of the aortic valves, an adherent pericardium, arterio-sclerosis involving especially the two coronary arteries and consequently producing degenerative changes in the myocardium. Post-mortem examination occasionally reveals chronic aortitis at the roots of the aorta, which is associated with some aneurismal dilatation of that vessel. This must interfere with the circulation of blood through the coronary arteries. The *Practitioner* (June, 1905) describes various types of angina. True angina having the grave symptoms above mentioned, is associated with local morbid conditions of the heart or of the aorta itself. The dreadful pain is here no doubt due to the involvement forming the superficial and deep cardiac plexuses, which lie in relation to the arch of the aorta. Of pseudo angina there are two types—the neurotic, and the toxic. The neurotic group chiefly affects women who suffer from functional or neurasthenic or vasomotor disturbances, such as sudden coldness and numbness in the fingers and toes, pain in the praecordium and faintness. The toxic group have strong tobacco or tea or coffee as causative agents. The treatment of pseudo angina must depend upon the cause; after this is removed little else is required.

Sufferers from true angina must live very quiet lives, free from all worry and excitement; and there must be no great or sudden muscular exertion. The stomach must not be overloaded; dyspeptic conditions must be properly treated; the carbohydrates must be diminished in the food. During the attack the patient must lie down quietly; must inhale slowly (for about five minutes) several minims of amyl nitrite from a crushed glass capsule, which is encased in cotton wool and silk. If this is not effective the inhalation of chloroform is indicated. And if this does not serve several minims of Magendie or liquor morphinae acetatis must be injected. Between the attacks nitro-glycerine is indicated, or liquor trinitrini may be given in minim doses in a little brandy three times daily; or sodium nitrite in one or two grain doses. If the angina be associated with general

arterio-sclerosis, especially if connected with gout, large doses of the iodides are indicated—ten to fifteen grains three times a day; blood pressure may thus be lowered. An occasional purge is essential where there is high arterial tension. Patients suffering from angina pectoris may die suddenly without manifesting any pain.

Diagnostic Value of Laryngeal Paralysis.—Many of these lesions cannot be diagnosed or even suspected without the use of the laryngoscope (N. Bonwell, *Lancet*, June 3, 1905). In abductor paralysis there may be no disturbance of vocalization; here the affected cord lies in the median line, and during phonation the sound cord adducts to meet it and the larynx appears normal. But on inspiration the affected cord remains stationary while the sound cord is drawn outward and backward. The voice is not altered, but there is some dyspnoea on active exertion—so severe sometimes in children as to require tracheotomy. In bilateral paralysis the cords are drawn closer together on inspiration and dyspnoea accompanied by stridor is a marked symptom. Severe paroxysmal exacerbations may occur at any time and prove fatal; so tracheotomy is indicated as a precautionary measure. Phonation is good but has a breathless character. The causative lesion of the paralysis may be situated in the medulla; or at the base of the brain; or in the vagus; or in the recurrent laryngeal nerve. In the first two of these conditions neighboring nuclei are prone to be affected as well, so that there is usually concomitant paralysis of the soft palate, uvula and pharynx. Persistently frequent pulse indicates bulbar disease. Bulbar paralyses are frequently bilateral, tabes dorsalis being the commonest cause. Syphilitic nuclear disease, gummata at the base of the brain, and syphilitic pachymeningitis are also common causes of abductor paralysis. Disseminated sclerosis seldom produces paralysis. Of peripheral causes neuritis is a frequent factor; it may be toxic (lead, alcohol, arsenic) or infective (diphtheria, typhoid, influenza, etc.). Paralysis from involvement of the vagus is usually due to compression of the nerve from aneurism, enlarged glands (usually tuberculous) and cancer of the oesophagus. Occasional cases are mediastinal growths, pulmonary consumption, goitre, etc. Aneurism is the most frequent cause of laryngeal palsy, inducing glottic spasm and the "brassy" cough which later becomes wheezing in character. Left vocal cord paralysis may be the earliest sign of aneurism. Tuberculosis acts either by pressure of bronchial or tracheal glands, or by involvement of the nerve in infiltration at the apex of the lung. The association of laryngeal palsy with a thyroid tumor, though suspicious, is not conclusive proof of malignancy. Adductor palsies always affect the phonatory function. They are usually bilateral and not due to organic disease of the nerve path. Functional aphonia manifests hysteria (both in men and women, coming on suddenly and disappearing as rapidly), however, anything which makes phonation difficult (debility, thickening of the cord, laryngeal catarrh) predisposes to hysteria. Unilateral adductor paralysis is very rare.

Quinine and inflammatory processes are dwelt upon by *The Therapeutic Gazette* (Aug. 15, '05). It is declared that this drug possesses greater antiphlogistic properties than mercury, aconite, veratrine viridi

or opium. Quinine exercises some influence upon the movements of the white blood corpuscles; and the use of this drug in ordinary medicinal quantities diminishes the migration of the leucocytes through the blood vessel wall and perhaps causes actual diminution in the number of leucocytes (Binz), F. T. Fitch (*Yale Med. Jour.*, June, '05), finds upon laboratory research that in animals poisoned with quinine the leucocytes in the blood are not only decreased but that their ameboid movements are arrested. This diminution is usually in the polymorphonuclear cells—there is a slight increase in the lymphocytes. These observations in no way prove that it is in this way that quinine does good in inflammatory processes; they do, however, point a way by which we can explain the empirical use of quinine in a large number of conditions.

The pelvic condition of primiparæ when discharged is often sadly neglected. Many cases of uterine prolapse in aged women, many of needless suffering and illness in the latter decades of female life are due to neglect of post partum condition. A. M. Judd (*Brooklyn Med. Jour.*, May, '05) has examined twenty-four primiparæ at the time when physicians consider themselves justified in allowing them to pass from his observation—usually within two weeks, and in tenement house practice at the end of a week after delivery. This period is much too short; various injuries to the genital tract may have been incurred, which may not have been treated and perhaps not observed; delayed involution increasing the danger of infection; the formation of scar tissue diminishing the elasticity of the parts requisite for subsequent labors. In thirteen of Judd's cases vaginal ulceration were present, resulting from mucous tears which are generally considered too small to require suturing. Twenty of the twenty-four had lacerations of the cervix with erosions, which were most extensive on the anterior lip. Measurements within the uterus showed that laceration had interfered materially with involution. "The non-repair of these injuries is a fruitful source of income to the gynecologist." Judd repairs small mucous tears immediately after delivery; as also lacerations of the vaginal walls and perineum. Lacerations of the cervix had best be repaired within a period of from seven to twelve days.

Vincent's Angina is described by Vincent himself (*Lancet*, May 13, '05). The term he applies is "angina with spirilla and fusiform bacilli." The ages between eight and ten and eighteen and thirty are those most prone, but the disease may occur at any period. All races, in all countries, may be affected. It is more frequent among alcoholics, those who use tobacco and those who have carious teeth. It is sometimes associated with ulcero-membranous stomatitis, which is often due to the same microbes. The angina may appear at the time of second dentition and with the eruption of the wisdom teeth. The influence of tissue conditions is shown by its frequency in the anemic, the syphilitic and the tuberculous. The disease is inoculable and is sometimes transferred by contagion. The microbe is a special bacillus of elongated fusiform shape, which may be cultivated on bouillon and which is in most cases associated with a long spirillum. These two germs are found almost exclusively in the false membranes, despite the innumerable bacteria present in the mouth. There are two clinical forms of angina—diphtheroid and ulcero—membranous. The first be-

gins with small white patches which enlarge and thicken on an inflamed base, on removal of the patch the base is found to be ulcerated. The submaxillary glands are usually enlarged and the onset is accompanied by slight fever. This form is caused by the pusiform bacillus alone or associated with strepto-or staphylococci. The second (ulcero-membranous) form is more common; here the fusiform bacillus and the spirillum are combined. It begins with febrile symptoms and red-dened tonsils. The tonsil or perhaps the pharynx will exhibit a gray or yellow membrane situated on an ulcerated mucous membrane. This false membrane is soft and friable; after the fourth day the subjacent ulceration is deep and irregular. The breath is very fetid; deglutition painful; the tongue furred; the submaxillary glands enlarged. This angina subsides in eight to fifteen days as a rule, but may become chronic and persist for several months. Sometimes there is also coexisting stomatitis. The ulceration may extend to the palate, tongue or fauces. Scarlatiniform or polymorphous erythema, or purpura, may occur; as also albuminuria, myocarditis and endocarditis—these latter however, due to streptococcus complication. The diagnosis may be difficult in the diphtheroid form or in the first stage of the ulcero-membranous. In Vincent's angina the Löffler bacillus is absent. In anginas due to other microbes—strepto, staphylo, or pneumococci, coliv bacilli, leptothrix, idium, etc., the clinical characters of Vincent's angina do not appear and the specific germs of the latter are absent. Sometimes one finds fusiform bacilli in microscopic preparations of the polymicrobial anginas, but there is no multiplication of these. Their presence is explained by reason of the fusiform bacillus, like other pathogenic microbes being a normal inhabitant of the mouth of healthy subjects. This applies to diverse ulcerations of the mouth and pharynx which may sometimes show a few fusiform bacilli and at other times be invaded secondarily by spirilla. Secondary and tertiary syphilitic ulcerations may be infected secondarily. Vincent's angina is cured in a few days by the local application of tincture of iodine, which seems to diagnose it from syphilis. On the other hand, mercury and the iodides have no effect on this angina.

Hysterical sleep brought on by vaccination.—Camus reports the case of a young soldier, who immediately after vaccination fell to the floor. He was carried to a bed, and given the usual treatment for syncope, which was however ineffective. The appearance was that of a man asleep, the pulse and respirations being about normal. The eyes showed the presence of nystagmus and the pupils were dilated. His jaws were tightly clenched; the senses seemed abolished. Movements of the right leg were noticed at irregular intervals and lasted through the attack. Twenty-six hours afterward he awoke suddenly, having taken no nourishment during that time, and having had no stools nor passages of urine.

Psoriasis.—In this affection, which is persistent and difficult to treat, Dreuw (*Jour. A. M.*, June 10, '05) has used the following with great success: R Acid salicylic 3iiss; Chrysarobin et Ol rusci (birch tar) aa 5v; Sapo virid et Vaseline, aa 3viss. This combination of keratolytic, macerating and antipsoriatic substances is applied for from four to six days by the aid of a stiff brush to the affected area, followed (after it has dried somewhat) with a dusting with starch

or zinc powder. This treatment, covering eight days, may be repeated several times, according to the severity of the disease, but generally the patches disappear soon after the first treatment. The ointment causes a marked scaling of the entire plaque, and, after several days, the black crusts, which soon become loosely adherent, gradually loosen upon bathing and inunction with vaselin or zinc sulphur ointment. The application of Dreuw's ointment above given causes an intense feeling wherever psoriasis exists, and he considers it an indicator of areas of psoriasis. It also limits the chrysarobin irritation exclusively to the diseased area and causes no diffuse staining. This ointment must be well made, the solid constituents being well triturated. For prolonged use Dreuw has prepared a "mull," a plaster impregnated with this ointment, which is practically unirritating. We might here observe that in skin diseases the practitioner will be likely to do much more harm than good if he is not sure of what the disease is he is treating. To this end a certain diagnosis must first be established; it being most essential to recognize and eliminate syphilis and eczema.

The diagnosis of prostatic cancer is made by Leguen (*Jour. de Med. et de Chir. Pratique*, Mch. 10, '05), who gives the points of difference from hypertrophy: the pain is more severe and constant, and there is less mechanical interference with urination than in hypertrophy. Hemorrhage occurs intermittently in all cases, but in very variable amounts. The pain is apt to radiate into the sciatic nerve, but is constant in the perineum. Interference with defecation is generally more marked than with urination. To the examining finger the wood-like hardness of the gland is pathognomonic. The tumor is very malignant and emaciation rapid. Operation is useless and inexpedient.

Amyl nitrate in inaccessible hemorrhages has been advocated by Hyde, particularly with regard to hemorrhages from the lung. The good results are evidently produced by the sudden lowering of the blood pressure, which moreover allows clotting to take place in the bleeding area. Francis Hare, of Brisbane, found accidentally in administering amyl nitrate by inhalation for angina pectoris, that menstruation was completely checked in the patient on several occasions. This experience attracted the notice of Colman (*Scot. Med. & Surg. Jour.*, May, '05), who administered the drug in this way to a patient suffering from severe menorrhagia; his results were most successful. The loss of blood was thus kept within normal limits after other methods had failed; and the patient's general condition was much improved. The lowered blood-pressure, either in ulcerated lung tissue or engorged endometrium, rises again after the administration of amyl nitrate, but gradually; and so the clots found are not displaced. The action of this drug seems to be a very close imitation of nature's method of checking a severe hemorrhage—syncope, clotting in the ruptured vessels, gradual rise of blood-pressure and return of consciousness, the rise of pressure being not rapid enough to expel the clots.

The Curability of Tabes is dwelt upon by Faure (*Brit. Med. Jour.*, June 10, '05), who strives to reconcile the divergent views of Babinski, Fournier and others. The variety in tabetics is such that they often cannot be compared and hence give different results with the same treatment; and analogous cases treated by different mercurial methods give also differ-

ent results. The toleration of mercury varies with the patient's condition, earlier stages of the disease and younger patients supporting it best. Mercury gives different results according to dosage and method of administration. Inunction is uncertain; as are also injections of insoluble salts (which may lead to accidents). Soluble salts are best for injection, being more under control. Results vary from cure to aggravation of symptoms, according to the care exercised in treatment and as the case is more or less favorable. Mercurial treatment well carried out may arrest the disease or lessen its severity sufficiently for the patient to resume his vocation. But work should be reduced and the periods of treatment and repose should be annual and prolonged. Mercurial treatment badly carried out may aggravate the disease, or even cause new symptoms which persist afterwards. By careful adjustment of the dose to the patient's strength the maximum good effect may be obtained without fatigue or malaise. Some cases get worse under the most careful treatment; probably syphilis does not play an equal part in all cases. Certain lesions are cicatricial and are not affected by mercury; others in the inflammatory stage will react to the drug. Improvement under mercury does not usually prevent the persistence of certain signs, such as modified reflexes; nor further relapses under the influence of overwork, other infections, etc. Mercury is not the only treatment; the general hygiene is also important, and work should be restricted. Faure concludes that this drug does not cure all cases; under certain conditions, however, it gives favorable results. It is an error to give massive doses in all cases alike; and equally so to give none at all. All tabetics should receive it combined with rest, hydrotherapeutics and re-education of the muscles. The course of the disease is not progressive in all cases. The classic type described by Duchenne is less common now than formerly, probably because of a more general adoption of mercurial treatment.

Left-sided gastric pain usually signifies an affection of the stomach itself, that on the right side is likely to occur reflexly from disease of other abdominal viscera. The only two exceptions to the former proposition—fat necrosis of the pancreas and splenic abscess—are so rare that they can be disregarded, declares Riedel (*Münch. Medicin. Wochenschr.*, Apr. 25, '05). An ulcer situated at the pylorus is much harder to diagnose than one in the body of the stomach, since the former gives rise to pain on the right side, which cannot be distinguished from that of cholecystitis. Ulcers of the antrum pylori give pain in the median line quite like the reflex abdominal pain of chronic appendicitis and that of a hernia of the liver alba. Tumefaction is very common with ulcers, since the musclicularis and serosa will thicken and adhesions will readily form with the neighboring organs, especially the liver and the pancreas. A mass may thus be felt to the left of the median line, if the ulcer is situated in the middle portions of the stomach. There should be early diagnosis, since the end result will be an hour-glass stomach for which only an operation will avail. The history is characteristic; left-sided pain directly after eating, lasting several hours, several months later another attack, the stomach having been perfectly normal in the meantime. In six months or so the pain comes oftener and lasts perhaps half a day while the irritability of the organ increases. Finally, there is vomiting half an hour af-

ter each meal—this is purely reflex, since a stenosis has not been formed. The pain is now permanent and vomiting of daily occurrence; blood is, however, found in but half the cases. Operation is indicated if not in bed for several weeks with hot applications and fluid diet does not result in a cure.

Artificial feeding should be adopted when the mother cannot nurse; when the infant is unable to take the breast; when the mother's milk continues to disagree with the infant, or does not contain sufficient nourishment; when the milk supply remains insufficient; when the condition of the infant or the mother calls for weaning. (*Illinois State Board of Health Circular*.) When the milk is good in quality but insufficient, the mother should be "helped out," by giving the infant some artificial food in addition to the breast-milk. This should also be done at the beginning of weaning. Good artificial feeding is better than bad breast feeding; the former should always be begun when the mother has been found unable by several experiments to nurse. Breast feeding should always be given up when the mother is a consumptive, not only because of danger to the child, but also because the drain upon the mother herself hastens the progress and fatal termination of the disease; when the labor is followed by serious complication, such as severe hemorrhage, puerperal fever, blood poisoning or nephritis; when the mother is epileptic, or choreic or so intensely nervous as to require medical attention; when there is anemia or chronic disease in the mother; when the mother has again become pregnant. Extremely sensitive breasts are not a reason for discontinuing nursing, even though there may be intense pain during the act. Persistence for a few days usually overcomes this. Menstruation does not affect the milk as much as is usually believed. The nursing mother can become pregnant; a contrary opinion is erroneous. Some mothers foolishly nurse many months beyond the time of weaning (about twelve months after birth), believing that thus they cannot become pregnant. Such prolonged nursing is very harmful for the child, who is thus not properly nourished.

Chronic acetanilid poisoning is emphasized in two cases related by A. Stengel (*Jour. Am. Med. Ass'n.*, July 22, 1905), both of which are interesting from a diagnostic viewpoint. The first had been regarded as an obscure vascular disorder and even after the cause was suspected it offered some difficulties on account of the lack of morphological changes in the blood. Oddly enough, these patients denied the use of the drug; and this mental attitude, which Stengel has observed also in another case, is to be attributed, he believes, to a moral disturbance during the continuance of the habit. After their recovery the patients readily admitted the facts. The polycythemia in one of the cases was also of interest, perhaps the more so, as there was with it no splenic enlargement, which is common in chronic acetanilid poisoning. Stengel emphasizes the case with which neuralgic symptoms were controlled after the withdrawal of the acetanilid. He believes that the continued use of this drug, instead of controlling the neuralgic manifestations, acts as a depressant, and that they occur with even greater frequency than before taking the drug.

Pleurisy simulating appendicitis is the subject of editorial comment (*Am. Med.*, July 29, 1905). This confusion is apt to occur principally in children, who

are subject to extremely sharp reactions. Pneumonia may also be mistaken for the abdominal affection. For example, a child will be taken with fever, vomiting and pain, localized in the right side of the abdomen, the disease being taken for appendicitis; but in a few days, one will detect localized dulness in the lung, with stethoscopic signs of demonstrating pneumonia. Pleurisy may be accompanied by abdominal symptoms, which give rise to the same error. The history of a child aged eight is cited (Comby), who presented a serofibrinous pleurisy during convalescence from scarlet fever. The pleural lesions were ushered in by a high fever, with a painful point in the abdomen; the pleurisy being on the left side and the abdominal point of tenderness likewise, caused some hesitation as to whether or not appendicitis was present. The abdominal symptoms were very marked, the abdomen being distended and painful; but the expression remained good. On the other hand, there was neither vomiting nor constipation. Auscultation revealed a pleuritic souffle in the lower part of the right lung, which showed that the pseudoappendicular phenomena could be accounted for by the process in the chest. Mistakes of this kind are more frequent than one might suppose. Garreau reports thirteen cases in which operation for appendicitis was done, when in reality, the cases were of pneumonia; the appendices here were normal. Certain pleurisies with a very marked reaction may give rise to a similar confusion. One should be very careful not to rely too much upon McBurney's point as a diagnostic indication, because a careful general examination will reveal the true nature of the affection. The lack of this precaution may expose one to serious mistakes and the performance of a useless and unjustifiable surgical operation.

Insect stings may occasion symptoms involving the respiratory, digestive, nervous and secretory systems; such symptoms being distinguished by the rapidity with which they develop and their intensity—oedema, eruptions, syncope, nausea, vomiting, diarrhoea and irregular pulse. (P. Fabre, *Bull. de l'Acad. de Medicine*, Paris, LXIX, No. 21.) The poison of the hymenoptera (bees, wasps and the like) is frequently more subtle and generally more rapid than that of snake or viper venom, which it resembles in many respects. Antivenim is generally not available, for the symptoms develop too rapidly. The most effective treatment is by aiding nature to eliminate the poison through the sweat urine, saliva and faeces, diffusible stimulants, diuretics, sialogogues and purgatives being indicated. The kidneys are here the chief emunctories to be considered. Locally lime water, salt or strong brine, is indicated, supplemented by a hot aromatic drink containing some diffusible stimulant such as ether or peppermint, to favor elimination. Vinegar water or ammonia usually neutralizes bee stings. The little blister formed by the clear venom deposited by the insect should be carefully removed without extracting the sting beforehand and without pressure (which would merely squeeze out more of the venom). Attempts to secure immunity by submitting to insect stings have been measurably successful in some instances.

A rising epidemic was recently reported in the rural press; one villager having been suffering with a rising on the finger so that a joint had to be amputated; and another having had trouble with a rising jaw.

MISCELLANY

Cancer, declares an exchange, has been ascertained to occur rarely very far south or far north.

In **nitrous oxide administration**, advises Gwathmey, either alone or as a preliminary to ether, the surgeons and nurses should consider the fact that hearing persists until surgical anesthesia is reached. All remarks should therefore be of a pleasant sort.

A **singular gift to science** was consummated by the delivery, according to the terms of his will, of the body of Mr. George M. Catt, for dissection, to the University and Bellevue Medical College. The deceased was the president of the Atlantic, Gulf and Pacific Company.

A **100-mile ride to patients** was taken by Dr. Richards from his home, Thermopolis, to Kerwin, Wyoming, where several men were killed by an explosion in a gold mine. The mountainous distance was covered in eleven hours. Four relays were used, the ranchmen along the route supplying the horses.

20,000 birth certificates were issued to children in New York City by the Health Department before the recent school openings. The *Post* pertinently observed: "When there are so many other circumstances important to their education, could it not be taken for granted that these children had been born some time or other?"

An **accumulation of blood under the fingernails** can be evacuated, advises an exchange, without the painful means of cutting. Put a drop of liquor potassae over the site of the effusion, protecting the remainder of the finger from its effects by oiling. That part of the nail to which it is applied gradually softens and can be gently scraped away until a small opening is made and the blood allowed to escape.

Druggists are tired, it is declared in behalf of the American Druggists' Association, of vending postage stamps and of supplying directory information to the public; there is a tendency to omit these features in the future. The main grievance seems to be against women who buy a two-cent stamp with a five-dollar bill; and in addition consume the time of the clerks by requests for aid in looking up names in the directory.

The **Electric Fan and Coryza** have oftentimes stood in causative relation the one to the other. A Philadelphia physician explains the electric fan cold by the fact that the air thus stirred, is not fresh air unless the fan is backed up against a window. "When operating in an inside room or in similar places where it is most appreciated, the fan uses the same air over and over again, and this air gathers up and keeps in motion all the available dust."

Special Hospitals for transmissible diseases are advocated by Bergey (*Am. Med.*, August 5, 1905). If patients were allowed to see members of their families (under special precautions) the institutions would probably soon become popular. In France there are hospitals for contagious diseases in which the wards are divided from a visitors' corridor by means of glass plates. This suggestion is in line with that of a prophetic gentleman who believed that all diseases of an infectious nature will soon become the special province of government health departments, to which the care and treatment of such cases will be relegated.

Consumptive employees in the British post office are now pensioned in the earlier stage of the disease. Thus do they have a better chance of recovery and a source of infection is removed from the department. This humane policy shines out with special distinction when compared with that of our own Government at Washington, which dismisses its phthisical employees without pension. The work of the postman, so innocuous and so suitable for many cases of incipient phthisis, has cruelly been denied to such sufferers.

A **new tax on immigrants**, notes the *Jour. A. M. A.*, has been urged by the President upon Congress. A million immigrants have come into this country during the fiscal year ending in June; and it seems that agents of our Immigration Bureau in Europe have revealed objectionable methods by foreign governments to promote emigration of the criminal and unfit. A heavy proportion of the newcomers are not desirable, for political, economic and moral reasons. It will probably be recommended that the head tax on immigrants be raised to \$25.

Vegetarianism is becoming very popular in English society circles, states an exchange, which cites a number of noble names in proof. (Not being up in these matters, we must refer the reader to the society journals for details.) Some are rigid vegetarians; others are slightly carnivorous, making a meal mostly of nuts and legumes. In "many great houses," too, fruit lunches are a customary feature. We note all this with a sigh, fearing the disintegration of the mighty British empire, which was built, we have been given to understand, upon juicy, rare, blood-grained roast beef.

The **hashish habit** seems prevalent in Egypt where the authorities are taking strenuous measures to suppress it. The customs' officials have made some very clever hauls—at Alexandria over one ton, which was valued at £2,500. The indulgence in hashish is forbidden both by the Mohammedan religion and by the law. To evade the authorities, this drug is now landed in Tripoli and conveyed thence into Egypt across country. The cultivation of hashish is one of the chief resources of the Peloponnesus; and the Greeks are the principal exporters. The alarming increase of insanity in Egypt has been attributed to hashish (from which term our word assassin is derived). Some of the poorest habits will go for days without food in order to be able to buy sufficient to send them off to the "haven of delight" brought on by a smoke.

The **feeding of New York City** is the largest contract of its sort in the world. This city is in this respect a greater purchasing municipality than London, which exceeds it in population, because London, within its own limits, is a producer as well as a consumer. Moreover, the standard of living in Gotham, declares *The Sun*, demands the supplies of all sections of the country under conditions unknown in other lands. New York City received in 1904 500,000 crates of American grapes, 2,000,000 tubs of butter, 2,000,000 barrels of apples, 125,000 bales of hops, 180,000 sacks of peanuts, 1,800,000 boxes of oranges, 100,000 barrels of molasses, 175,000 boxes of cherries, 250,000 boxes of raisins, 100,000 crates of pineapples, 8,000 cases of honey, 1,200,000 cases of cheese, 3,500,000 cases of eggs, 700,000 boxes of lemons, 175,000 barrels of oatmeal, 400,000 barrels of onions, 400,000 crates of plums, 3,000,000 barrels of potatoes, 300,000 barrels of rice and 300,000 packages of breakfast food.

PALIMPSESTS OF PARASTHENICS.*

BY T. H. EVANS, M.D., PHILADELPHIA, PA.

NO one realizes better than I how difficult it will be to carry out the purpose of the series of papers of which this is the first. In the case of diseases which run distinct and definite courses, to which there is a beginning, a middle, and an end, it is very easy to separate determining and exciting causes, and discover how these affect the patient. But in those obscure recesses of the citadel of personality wherein impulse and initiative arise we must look for reasons without an understanding of which we can never seize the meaning of life as it exists for the parasthenic.

Before discussing the condition of parasthenia, just a word in preliminary about the methods of studying disease, for this is a matter of starting rightly.

If we have to consider typhoid fever, we immediately take up the meaning of the specific or exciting cause, which is a micro-organism. Up to this time very slight attention has been paid, however, to the causes which exist to allow this or any micro-organism to enter the organic structures of the body invaded. This is even more important. And in cases of pathologic drunken habits, or in the improper usage of morphin, or cocain, the whole question centres in this, which must be settled.

At once the relations of mind to body present themselves, and must be considered. If any tissue of the body (which develops from a unicellular biologic continuity), become the vehicle of thought, it is evident that every issue of the body inherits some of this original possibility, although it does not follow that all tissue, after a time, is fit to carry on such evolution. But no tissue can develop something out of nothing. And not only all the tissues in the body are descended from one cell, but all bodies of men are related in development to the same original stock. Darwin and others object to the theory of "convergence." Darwin expressly states that he does not think that many divergent species may furnish in the end similar descendance through very multiplicity.

The sympathetic relations of the tissues of the body, and the sympathetic relations of men arise from their essentially common heritage.

The actions of an individual may be either wilful, forgetful, necessary or ignorant. If I am injured it may be because I allow myself to be hurt, or forget to take care of myself, or because I can't help it although I am aware of the chance of injury, or lastly, I may be hurt without any knowledge of the chance of injury. Similarly, with the cells of the body. Pathologic agencies may take them unawares or unprepared, or forgetful. Wilfulness on the part of tissues of the body may certainly be accountable. Or in the event of malnutrition, the tissues may realize danger, but be unable to defend themselves. This understanding of disease is the result of an attempt to connect the functions of mind and body in the light of our better modern knowledge. Indeed, the relations of mind and body are exactly analogous.

In the study of any disease, or pathologic process, in which the mind may suffer, or may take a part in the etiology, a very different study of the individual than is usual must be made.

Many writers within the last year have realized this,

* First Studies: Chiefly a Contribution of Data, with Comment

as their papers increasingly show. There have been attempts to discover the relations of pulse and respiration in cases of melancholia and mania, etc.

I would define Parasthenia as a condition of varying tone of body tissue, in which the fluctuation passes normal limit. Neuroparasthenia is the name to be applied when nervous tissue becomes so affected. The importance of a knowledge of this ranks first in the study of Criminology and in those conditions which are commonly attributed to Degeneracy. Because the question of responsibility is involved.

Parasthenia may be either cyclic or irregular. It consists of four stages. 1. Rising tension. 2. Climax. 3. Falling tension. 4. Fluctuation. This last stage may take place either above or below normal, more usually below it.

In normal individuals fluctuation does not exceed moderate limits, except under excitement, fever, or other disease or emotion.

Cyclic parasthenia presents a regular return to the stage of climax. Irregular forms of the disease are due to extra-personal relations.

What individuals suffer who belong to the class of parasthenics is untellable. What they do under the influence of physical instability the annals of the race are filled with. Unfortunately these people have been seized by the ungentle hand of the law, and misunderstood, instead of being recognized as the wards of Medicine. *Nous changerons tout cela.*

In attempting to study these cases in their incipency it will be necessary to leave the office and consulting room and go where conditions are which determine the pathologic results. This going out into the world is strictly a laboratory method, although it involves an absolute change of identity on the part of the student. It is obvious that no physician, as such, would be able to penetrate the haunts of vice and the surroundings in which these psychic morbid processes grow, for he would not stand in a relation of intimacy, on account of the respect or fear people have for him, unless he would appear to belong to the same station in life as the people with whom he wishes to gain a sympathetic knowledge enjoy.

As I said in starting, there are many difficulties in carrying out the purpose of these papers. Not the least of these will be that of accounting for the information which I have gathered. But I may say at once that I have been, temporarily, but many times a resident of places in the Tenderloin of Philadelphia, and have visited in other cities similar sections. And I know the people because they thought me one of themselves. More than this I have succeeded in bringing out from their ranks a few, and these have assisted me in studying many phases of life which form the subject matter of these studies.

In previous contributions I have reported many cases in detail. Before returning to these I wish to take a page out of my experience with a young man addicted to the use of cocain, because this will show very well the method which it is necessary to pursue in gaining our knowledge.

Some people intuitively feel mental atmosphere. In the same way that scenery and the grandeur of natural wonders may impress us, to the poet and the imaginative the characteristics of people are far more impressive, and comic or tragic as things may be. But to appreciate this, a common experience must be gained.

Any one who has lived the life of a drug habitue, or of a criminal, or of a degenerate, will understand what I mean. The same feeling of common experience impels soldiers to join the Grand Army of the Republic, the Union Veteran Legion, etc. Outsiders are not wanted, and would not be at home. I can well believe that people, even medical men, may pass through evil resorts, visiting patients, or out of curiosity, and acquire next to no idea of the real meaning of life as it is to the people he meets. In other words their mental processes are foreign to his entire experience.

Does he know that there are organic relations between these people and the corner pawnshop, far more intimate than the relations between him and places which mean life in its fullest form? In many houses there are shoes, or teaspoons, or razors, which week by week appear in the pawnshop, and which the dealer immediately recognizes as "Mrs. Cassady's," or "Whitely's." These articles represent a definite money unit which may be obtained as frequently as desired, and must be kept in good condition for the next time of need. The immense relief that the knowledge of ways to obtain money brings to these people is an actual factor in their states of nerve tone. And besides this, the relief is bound up with sensations relating to that for which the money is wanted, such as alcohol and the pleasures of a debauch, or cocain, or morfin, and these pathologic things much more often than the need of clothing or food or rent.

When we hear the name of a new synthetic drug it produces little thought compared to the wealth of association which the name "strychnin" calls up. To understand these people and their troubles, we must be able to realize the feeling of relief that money obtained by pawning articles brings, and also the wild desire which is bound up with the prolongation of a debauch, and the terrible longing which is born of the want of money and the feverish desires of an abnormal organism. These we must feel sympathetic toward, or we are not fit to touch the exquisitely hypersensitive nerves which tingle and jangle in these unfortunates.

And the pawnshop with its uses in their lives is only one among the 10-cent lodging houses, the 5-cent and 3-cent shaving parlors, the 5-cent "rats" in the saloons, the 7-cent and 10-cent meals and the quarter-price laundries—which gloss over but do not cleanse their clothing—just as these people fix up an appearance to cover their utter misery and vice.

So when we talk with them we must remember that words will not excite the same impressions or suggestions as they do with us.

An infinite tact, patience and adaptability must be exercised.

These people live and move and have their being among petty thieves, murderers, touts, pimps, swindlers, policy-writers, idlers, immigrants, refugees, degenerates and the truly insane.

All this miasm in their environment is to them normal life. They are accustomed to it, and do not react normally when deprived of it. Therefore in decent company they appear suspicious, ill at ease, or ill-mannered. But I know that very rigid standards of conduct exist in the lower stations of life, so that some things can be done and others not at all.

The narrative to follow explains itself:

NARRATIVE A.

Eight o'clock, and still no sign of him, and nine, and ten o'clock, and still my patient had not come. He was a young fellow between nineteen and twenty whom I was trying to break of miserable habits and cocain using. I discovered him one night in April standing on the street corner and plainly under the effects of a narcotic. He asked me for a light for his cigaret, which I gave him, and began to talk.

In a moment I could see he was of good family, which I proved later on. I talked about his foolishness, and begged him to come to my office. But he did not come as he promised, and it was August before I met him again in the middle of the night in the Tenderloin.

Now, it was September, and for three weeks I had been in close touch with his movements, and had succeeded in impressing him with his condition and danger. But to-night I was afraid he had gone back.

So it was. About midnight, when I was in bed, the night bell rang, and I admitted him, terribly affected by the cocain. We talked until three o'clock. This time he made up his mind he would succeed, and promised me to leave the room where he boarded in one of the worst streets of the city, and go to a better place and get work.

He had no underwear on, and a torn suit. For a week or so I kept getting him clothing, which he would pawn. I let him have money, which he misused. Night after night I would go down town and find him where he promised not to go. He boarded with a terrible appearing woman wrecked by syphilis. To my horror one night he admitted she was his sister. I verified this through relations of his, very fine people, though at his request I did not tell them about what he was doing. They were taking care of a child of his sister's for her, because she could not bear to have it live in her miserable surroundings. Her husband had deserted her.

Another week, and my persistence was rewarded, for the boy began to co-operate and really tried hard to break away from his wrong doing. But the very night he was to come up to a boarding house I selected for him and get the work I had secured, again cocain mastered him, and he sent me an elusive message by telephone. I hastened down to his sister's. It was nearly midnight. Entering through a narrow, filthy, poorly lighted street, I found her on the first floor dressed in scarlet, low neck and short sleeves, and entertaining a well-dressed gentleman easily fifty years old, whom I found to be a well-to-do merchant of our city. He, however, does not know that he was recognized. Her brother sat with them. He was just recovering from the effects of a slight dose of cocain.

His speech was explosive, and the words formed with an effort. His eyes could not look you straight in the face, the pupils were dilated and unsteady. His face had a good color, but the muscles of expression were rigid, and his hands and face were marked by excessive perspiration. He was ashamed, and yet glad to see me. Everything he had gotten from me was in pawn, except what he was wearing. I think he did have a soiled collar and a pair of socks in a battered linen suit case, not the leather one I gave him.

We went out. I had left a good friend waiting for me on the corner. The boy and I talked earnestly. He had had just enough cocain to want more.

Strange as it may seem, when he refused to go up town with us, I did not finally oppose his resolution. And there we left him. I took what little he had in the suit case and said good night. The lights in the larger street flared brightly, and the narrow street like a cavern of despair framed him. He solemnly promised to come to my office in twenty-four hours. Do you think I believed his promise? No. But at the same time I threw into my farewell all the magnetism and power that I could summon up in spite of my great disappointment. The next day was Sunday.

I waited. Just as always before the hours went by and no word from him. I phoned to his sister. All through the day he had borrowed money from people in the neighborhood, and an exchange ticket several times from her, telling her he was coming to my office.

She had not seen him since three o'clock. She sent to all his favorite lounging places, and to W—'s Hotel, where for 10 or 15 cents, he would get a bed and spend long hours breathing cocain powder. But he was not to be found.

At five minutes to six Sunday evening, wonderful to relate, he did come to my office. But, poor fellow! Miserably broken down. He had taken upwards of 30 grains of the hydrochlorate of cocain, and 4 grains more just as he took the car to me.

I made him lie down, and ordered a hot bath. I talked with him, and he quieted somewhat, although his whole manner was tense and fearful. After a hot bath I wrapped him in a blanket and administered digitalin, and a little very dilute alcohol. After an hour in bed he was very much better.

I never ceased talking with him. In these times words go very far. He said to me, "I am done with it." I neither believed him nor disbelieved him.

But he could not remain quiet in the house. The stimulation of the drug would not down.

Out we went into the night. I had hurriedly packed some necessities in a suit case. He begged to close up the whole miserable affair down town by going over his tracks and squaring up small sums of money he owed.

It was about half after ten as we took the car down town. The night was heavy. The lights along the streets showed murky. Worse and worse grew the neighborhood, and we got out in the Tenderloin.

There on a corner of a public square, stretched out on the stone coping lay many young men and wrecks of older ones. It was a lounging place for the sneak thieves, pimps, swindlers and degenerates. Hurrying by we came first to a fruit stand kept by a kind-hearted Italian woman. T. often sat in the little room behind the fruit stand, where she allowed him, through pity, to sober up from his debauches. Looking in we could see another young man. This was "Whitey."

My patient, in a warm-hearted, boyish way had associated with him. He called my attention at once to the fact that "Whitey" was using the cocaine. I could easily see it.

The spread of the use of this drug in the Tenderloin within the last six months has terribly increased. Any drug store will sell it in quantities to those whom they believe are "safe." That means, to those who will not give the thing away to the authorities.

The streets were full. And yet there sat "Whitey," screened by the fruit stand, and shaded from the street lights, masturbating!

This will not be believed, but as he is within reach, and many more like him, I am ready to prove it any time.

T. and I went the round of the drug stores; 10 cents here, and a quarter there, until all his accounts were straightened—and I knew who had sold him the stuff. But what can you do?

T. had not eaten a real meal in three days, and during that time had never been properly to bed. He was under the stimulation of the narcotic, which was passing away.

He felt he must eat. He ate two steaks, two soft boiled eggs, a plate of raw oysters, and still was not satisfied, but I checked him. He began to be nervous. And we went to a hotel where I am known. I put him in bed.

Curiously enough, the Odd Fellows were in town. One of them was sick in the next room. The bell boy told me he had a mustard plaster "so big" (separating his hands about two feet) "on his stomach," and the bell boy informed me it was from drink that the man felt so badly. It appeared the doctor had been there three times that night and the man announced that he was going to the hospital in the morning. I do not know the termination of this episode. Probably the man recovered in good season. But I recognized his feelings as those quite proper to the stage of his illness.

In our own room things were going rapidly, and dangerously. About two o'clock in the morning the boy weakened very much. He complained of faintness and chills. With me I had all the necessary means of treatment, but it was not until noon on Monday that he was able to sit up. Later in the afternoon I took him to his sister's, and made him say good bye to her and the neighborhood. The pitiful side of it all struck me to the heart.

She told us that her rent was due, and promised money was not forthcoming. This little matter we adjusted. She was not to come near her brother without my permission. Then T. and I went the rounds of the pawnshops and visited a Chinese laundry to get his belongings. The treatment I had given him made it possible for him to come up town to the boarding house, and there I left him at supper. It was eight o'clock Monday night.

I hurried to see some patients, and found him in the office on my return. I sent him back to the boarding place with orders to go to bed. You may wonder that I trusted him. We have to. If he cannot exert his will power, there is nothing whatever to do.

In the morning I hurried to him, and found he had been so exhausted as to sleep with half his clothes on crosswise in bed.

But his appearance was better. He reacted splendidly. In a few days, as he came and went I could see that he was gaining. I gave him money which he used as I told him for trolley rides. In many other ways I kept his time occupied. And finally I got him to work.

The outcome of this is not final. No case is ever safely cured. But my influence over him is established, and he is young. He is absolutely unmoral. Many ideas strike him with pitiful novelty as I warn him. His relations sexually had been very loose. He hardly realized the reasons of restraint.

He had no idea of saving money. Some days he might make \$20, as he said, smilingly, "buncoing." This had to stop. He could hardly get along on a dollar a day spending money.

His habits of eating were perfectly irregular. His habits of sleeping the same.

In our conversations I came to know just how he would wander the streets. Sometimes he would meet men of good family out on a spree. They would spend a night together. Or he would meet young girls willing to oblige him all for an oyster stew.

He would drop into his sister's house, exhausted. After a sleep he would be out again. Or he might sit with "Whitey" in the fruit stand, and take cocaine snuff. He tells me of a long rhyme that is current, and which began:

"Cocay is for horses,
And not for men;
Doctors say it will kill you—
But don't know when;" etc.

Many other jingles he would tell me, some of them disgusting, and others wretchedly obscene. And yet the pity of it all lies in the fact that he does not seem to realize the sort of life it is.

I do not think there is the faintest conception of the relation of all this sort of thing to the development of crime and disease. And I do not think that we can decide the element of responsibility without making a close study of it.

NARRATIVE B.

Many times I have gone down town in miserable clothing, without a collar and with soiled hands and roughened hair. I have spent the night apparently in a drunken stupor among these boys and men who rest on the curbing of squares. What a spectacle! I remember about 2 A. M. the leaving out of a dance from a German Society which meets in a large building at one corner of the square. There stood the shadows of night under the trees of the square here and there punctuated dimly by lamp posts, and across the street rose window on window brilliantly illuminated and giving forth sounds of merriment. Then young men and girls, who had no business to be out at that time of night, hurried down the broad stone steps. Many of the young men had plainly taken too much beer. Two girls and a young man passed me and entered the shadows of the square. He was just drunk enough to be foolish, and lay down and rolled on the asphalt walk. They pulled him to his feet, and all talked and laughed together. But I could see the girls were ready to go home. The three moved toward the street corner as the car approached. One girl entered it, but the other the young man pressed to stay. For the briefest moment the struggle went on. I could hear his voice earnestly arguing. Just then as the car started she turned and swiftly seized the railing, while the conductor assisted her to the moving platform. It is these half seconds which save or damn eternally.

The young fellow passed me again, and I could hear him muttering some sort of oburgation.

Next to me sitting on the curb was a young fellow who appeared to be a mechanic out of work. He told me he could get work at Baldwin's, if he only had the necessary money to pay a week's board in advance. He told me he was from Lynn, Mass. In our conversation his story did not hold very well together. I allowed him to think that I, too, was out of work. He tried to borrow some money from me, but, of course, I had none.

Two men near me lay in a drunken stupor, and I could see another using cocaine snuff from a little wooden pill box.

The night wore on. It was damp and we began to become stiff and cold as the cloudy eastern sky lightened above the dim buildings, and as the street lights faded I took a Fifth Street night-car homewards.

Many questions arise. Do these people really enjoy night better than day time, or do they prefer it because it gives them better opportunities to do the things

they do? In a paper contributed to *American Medicine*, I have endeavored to develop the idea of the relation of nervousness and mind-rhythm.

I have found the rhythm of mind as to sleep and waking just as interesting and varied as pulse rate. I have also shown that these may be connected.

The power to control the mind is bound up in that of mind-rhythm.

There is not space to take this up here. Returning to the subject of parasthenia, I want to refer to its stage of climax. This may be warded off by the use of a narcotic. And it is so that true cases of narcosomania originate. By the use of a narcotic I mean many substances, and practices, not usually held in mind.

I have shown elsewhere that besides alcohol or morfin, people may use food stuffs, or may smoke tea leaves, or may resort to carbon dioxid suffocation, and even coffee, candy, catnip, or peculiar psychic efforts may be cited.

The characteristic of narcosomania is to be found in the variable tension, and the climax, and the effort to avoid this climax.

Under the excitement of parasthenic rising tension and climax, crimes are permitted.

The causes of this rising tension are to be found in the causes of neuroparasthenia. Many of these causes are difficult to determine. In many cases repressed sexual activity is important; in others we may find transient illnesses or disorders of the circulatory system, or the gastrointestinal tract.

In succeeding papers we shall see something of the inside feelings of these parasthenics according to those things they have told me, and which I have discovered living with them.

The field for work in this line is tremendous and increasing with the increasing strain of modern living, on the nervous system.

HARDSHIPS OF SOCIAL VICE.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

THE most natural inbred perversity of humanity is what is recognized as the sexual vice. Its prevalence is too broadcast for evasion, its diseases too aggressive for concealment, their cure too difficult for trivial estimate by either the erring or the physician. The children who are clean born; the youths of both sexes with uncontaminated constitutions; the men and the women who avoid the dangers and escape the painful consequences of sexual pollution from venereal disease are among the blessed of mankind. "Thanks be to God!" exclaimed the eminent author, Professor Samuel D. Gross, in an earnest lecture to his medical college class, of which the present writer was a member forty-six years ago:—"Thanks be to God, that I never have exposed myself to the pernicious poison of sexual disease!" Professor Gross believed and taught that the social evil was not only the source of broadcast acute physical corruption in the world, but also entailed a heritage of scrofulosis and tuberculosis in its train of evils among the human family. With incessant industry, Professor Gross lived to accomplish magnificent work for the world, and died in advanced years, physically worn out, but pre-eminent in honors.

As above intimated, the sexual error is the most natural inbred perversity of humanity. This is so because the sexual appetite is an imperious force of na-

ture, by the fact that the children of men have universally inherited the primal impulse to functional desire, through the paternal act of conjunction that gave offspring their existence. When we remember that every child born into the world is the product of a sexual desire for gratification, we grasp a problem that explains this never-ceasing and law-defying propensity of human nature that through all the ages has developed the continuous scourge of social evil diseases.

No normally developed man or woman need be ashamed of healthful sexual functions so regulated and controlled as to stay clean and honorable. But every sane man and woman should recognize their eternal disgrace who riot in sexual depravity for initial experience, and then bring to marriage and offspring the ensign of corrupted blood and degenerate constitution. But who can devise the way to successful repression of social disease? While there exist opposites of sex to stimulate and attract, and while the perturbing impulses of sexual sense rouse and rearouse in appeals for risks that appease the appetite of nature, the social or sexual evil will continue to subvert the discrimination of sanitary safety, will continue to overreach all negations of law and Gospel. Such has been the blotted record of sexuality through all civilized and barbarian history of human life. Man as man will not abate what woman as woman concedes and risks. Thus the beguiling gates to continuous spread of venereal scourge ceaselessly swing on toward the human hardships of unmeasured depravity and transmitted wrongs.

Let us be certain of our premises. The seeking of each other, the mating of man and woman, legitimately or illegitimately according to regulations of civil law and license, is not consummated by the influence of imitation or custom, but by the relentless law of human nature that is inherently irrepressible. Detering circumstances the exception, the ardor of attachment between the sexes constantly exceeds the limits of discretion. Ventures and adventures are daily leading their votaries astray into thorny hedges of perplexity, to appalling tragedy; but, nevertheless, the grievous warnings of unhappy examples do not stifle the craving of rash impulse nor lessen the calamities of the erring. As constituted, man is a pursuer, a perpetual seeker, a weakling in the presence of instinctive temptation, yet a bold invader in the realm of feminine concession and favor; and, withal, there is no inspiring career in life, no pursuit of independent ambition from which woman (not all) will not turn to share herself devoutly with man, even despite afflicting hardships that follow with desperate certainty, because of the mastery of nature's ordination within her. Is the atrocity of it comprehended? I have seen the guileless but venturesome young woman, of refined training and education, who in an unguarded hour impulsively yielded to the sweep of magnetic solicitation, and conceded to immediate marriage ceremony that pronounced her "wife." Before the next sunrise, poisoned venereally by the equally impulsive young man whom the preacher had pronounced "husband." Rush from him in disgust and suffering, endure the pangs of mental perdition and concealed pains during a prolonged course of clandestine treatment made imperative by the social situation. Only, only, I aver, to relent, go back to that man "to make the best of it," condone his repentant indiscretion, nurse him through illness, work and half freeze and half starve to obtain food for him, and, ultimately give herself again to him

body and soul! This represents one phase of the monstrous problem.

A score of years ago, when making considerable investigation and writing several papers on the subject of the social evil, I was by temperament disposed to embrace the *exparte* view usually asserted by the female participant, that woman was unrighteously pursued until cajoled into yielding unhallowed tribute to the passions of man,—that woman was, under the conditions forced upon her, essentially the victim of man's voluptuous sensuality. I condoned the sacrificial lot of woman; I censured the inhuman aggressiveness of man. But in my later professional observation, when young men of romantic impulses at first venture,—even Sunday-School youths fresh from the studies of the Bible, had been lured to the inviting embraces of the fast woman steeped in the arts of sexual sin, this mere girlish harlot in her concealment of physical corruption and for the pittance of a needed dollar deliberately and shamelessly had incubated her successive dupes with unexpected and quite irradicable disease, and sent them home to remorseful misery that could perpetuate itself incalculably in their future families,—I was keenly forced to the counter conclusion that a skilled woman prostitute, gifted with enticing form and looks, with captivating airs and trained finesse, was the chosen temptress of the devil to make graft on the natural passion of man, and altogether capable of clinching the curse to humanity by spreading abroad the burnings of individual perdition on earth. These later, more matured observations recoined my judgment. And when one analytically considers what hardships and punishments will be endured by women in morally impure life, only to return again and again to the sexual uses and abuses of brothel habits, it becomes logically evident that Eve accepted converse with the tempter's promptings to knowledge of sin of her own voluntary will, and then eagerly imparted the invitation to Adam, and their nakedness immediately became revealed to each other, just as thousands of girls and women are yet discovering where the passions of man may be most readily met on invitation for the prostituting consideration of food and dress and money price. These deductions were not dispelled when I then sought the dark corners of a second-hand book shop and opened a ripe-looking volume of London publication way back in 1857, that unreservedly figured out this dismal disclosure, by the investigative Dr. T. S. Holland, who endeavored to discover the frightful rate at which venereal diseases were propagated in England by means of prostitution: "Within the bounds of moderate calculation there are fifty thousand prostitutes in the United Kingdom. Each one of these women, in order to live, must have sexual congress for compensation at least once during every twenty-four hours. We may assume that in one hundred prostitutes in health, one alone contracts every twenty-four hours venereal disease. It follows that in fifty thousand prostitutes there are always five hundred daily who are diseased. It follows also that every day there must be in the streets of England five hundred women affected with venereal symptoms. In each group of six individuals, who in the ratio of one every twenty-four hours have sexual congress with these women, five will undergo contagion. Consequently four thousand men will be effected every night, and one million, five hundred thousand in the year. These men will communicate

the disease to four thousand prostitutes supposedly in health daily, and this gives one hundred and eighty-five thousand, five hundred cases annually. To sum up, there will be produced in England annually, one million, six hundred and fifty-two thousand, five hundred cases of venereal disease:—but in reality, including all the walks of life, these figures do not represent one-third of the facts."

This revelational estimate, stated specifically of England at that time, can by no jugglery of evidence be limited only to the United Kingdom. It applies, not exclusively to one civilized geographical territory, but forcefully represents the entire subtle realm of human nature—human depravity, if any one prefers that interpretation—and the social scourge evolved by human nature is relatively as rife in New York, Philadelphia, every crowded city and considerable town, and all the expanded Commonwealths of our own country. To squint our eyes and stuff our ears against the revolting facts do not smother their existence nor palliate the mental and physical marasmus that attend them. That the poison carried to and thence scattered abroad from habitues of "fast houses" corrupts the race to inestimable ratio admits of no dispute. The public girl of bewitching personality, without a scruple of conscience, without mercy or shame will adroitly mask or conceal the depths of her pollution and even boldly deny its existence, until she has infected a concourse of males that no man has numbered—youths and men, many of whom through chagrin keep their secret misfortunes to themselves rather than confess that they had debasingly ventured into the lair of shame. Some months ago I was authoritatively informed of the instance of a "fresh girl from a country town," who took a room located convenient to a street-car depot, where employees were numerous from daylight to midnight, and where any new fast-house feature would be speedily advertised. By the carnal attraction of this girl, in fourteen days she had ten conductors laid off for physical repairs besides the host of crippled victims who could yet hold out to report daily for duty. An astounding proportion of these eager dupes were said to be married men—a situation horribly atrocious!

Of course, the disabled woman who leads such a degrading course of life, in self-hatred simulating pleasantries, in the delirium of alcoholic stimulants forgetting her discomfort, in the slough of reckless despair, she rapidly runs her destructive career to hastened collapse in hospital and death—but what of the perils she scattered among misguided humanity while running her short but despicable race!

It is not wise for us to persistently generalize. We are entitled to specific data if we would grasp real conception of serious abuses that need be practically understood as problems demanding correctives. The catchy actress or singer on the stage, in risqué stunts for a brief season, may serve as the passing rage of a class of diverted patrons. Likewise an occasional woman with some fetching feature or individuality, appearing new in fast-life circles, may swoop the fancy with the fanaticism of carnival revel among rounders in sexual dissipation. One-half of the world has little thought of the lives of the other half. Some years ago a woman of drawing prestige was under observation from a room on corresponding level across a dividing area of eight feet between the houses. During that certain very warm Summer afternoon, when windows

had to be frequently opened for admission of air, nine males were seen to come and depart, one at a time, as patrons at the shrine of this young courtesan, who ran up the window shade after each departure and hastily redressed in her attractive receiving costume each time before the next guest was admitted. The woman was described as a thin but tidy-looking creature, not exactly handsome, of light blonde complexion and with black hair and eyes that gleamed like diamonds. Her shameless cash winnings seemed profuse, as judged by the careless way in which she would toss a big roll of bills from bed to dressing bureau with careless unconcern. In four weeks she wilted from exhaustion and removed to the hospital. In the ambition for response to masculine partiality she spared not herself. It is the usual confession by this class of women that when once launched upon the evil course, if patrons come, it is next to impossible to relinquish its hardships for other pursuits; and the usual end is disease, decline, death. What begins as romantic fascination for "a good time," besides the inclination a voluntary choice, becomes shameless necessity and wreck through drink, consumes vitality with ulcerous decay of the genital addenda or of tuberculosis of the lungs, is carried to an early grave of dishonor.

In a recent case of police raid of an ill-fame resort in Philadelphia, several inmates were captured. Two of the girls were from towns about eighty miles distant. The considerate judge suspended sentence on condition that these girls returned to their homes. He therefore committed them to the charge of an officer, who obtained tickets for both and put them on a night train for their homes. At almost the first station for stopping on their way, both girls walked off the train and took first passage back to the city, evidently preferring to resume the life of the courtesan. Again they were both arrested and taken before the same judge, who sentenced one to thirty days in the county prison, and the other was returned to her father who had come on to take her home. The fear of frightful disease has never appreciably diminished the number of sexually demoralized women. Eagerness for adventure, intemperate exhilaration from spiritous drink, heedless risks to capture patrons for money consideration, altogether carry these women headlong to the vortex of physical wreck. Under the present upheaval of our reform city control in Philadelphia, the wholesale raiding of houses of immoral repute in tenderloin districts by the police has been persistently waged. Agents of the Law and Order Society have been strenuously active in gathering evidence and identifying resorts. Pastors of churches who are eminently qualified to enounce the regenerating Gospel of Christ, but betimes chary of Christian charity towards the erring, and though voluminous censorious are often conspicuously dense as physiologists of unchangeable human nature, have warmly enjoyed the opportunity of advocating the policy of "breaking up" the social evil resorts of Philadelphia by mortifying persecution. To professedly spiritualized minds this violent rudeness seemed like pushing forward the chariot of righteousness. On one occasion of a broadly planned surprise raid for a hot night last Summer, hundreds of the unfortunate of all grades were captured, hauled to the Central Station and crammed together in the sweltering cages of detention, like corralled animals, till the morning hour of their hearing and sentence. In any humane sense, the

situation was not creditable to civil decency or Christian grace. While the enthusiasm of this type may seem for the time deservedly plausible, it is effervescent and ill-advised even as an advertisement. Forcibly disturbing and dispersing these hundreds of immoral women, social sinners as they no doubt were, from locations where women of their vocation have usually segregated, does not appeal to good judgment, does not suppress their natures and practices nor obliterate the results denominated social evil. To obliterate the social sins of the world, the radical province of human nature must be first eradicated. All these women must and will live somewhere, since God does not in righteous anger smite them with death at the pubescent stage of sexual development, and therefore they are compelled to find another place to abide. Being forcibly scattered from their usual areas of tenantry, they disperse to other parts of the city, and there continue somewhat more clandestinely their natural though abhorrent mode of life. Whenever a girl or woman with prostitute proclivities is driven from tenderloin districts, it is logical inference that by her naturally suggestive appeal to the passionate element of man's nature, she starts the train of her seductive dangers at a new point and develops among a better class, a class who would measurably shun any notorious tenderloin, unsuspected fields of licentiousness. Wherever the seed is sown there also will ripen the harvest reaped. First quench the fires, paralyze the forces of sexuality, if you would obliterate the inter-social ventures and vices by raids and sentences to penal punishment. Every woman who goes into prison for sexual sin comes out seared in repute, and is in heart and desperation worse than before.

It is not the purpose of this paper to dwell particularly on the extent of the social evil in the United States. The combination of population here, the rivalries of pride and vanity, the newspaper reports of scandals in business life leave much to infer and little to guess. But it is yet hoped that in our large towns and cities moral degradation is not equally rife with the depraved situation presented in many prominent locations of the mother country. We have here a rather superior civilization and money-getting facilities. In London, for instance, because of pittance wages for the sewing population many thousands of girls and women have customarily resorted to prostitution to gain livelihood. Man seems everywhere willing to part with his money for sexual indulgence. In Edinburgh great numbers of young girls and young women resort to prostitution in ratio to work conditions for subsistence. When Mr. Tate made his instructive study of this problem, he affirmed that one-third of the persons who worked in Edinburgh as needle women or servants resorted to prostitution through alternatives of personal necessity; while those women who adopt this life of dishonor from scheming love of money, aspired to win attentions of men of means, in order that liberal sums might be extorted by threats of exposure or blackmail—thus redoubling the mental hardships of men caught in the insidious snare of the human passions. And there was discovered the yet more deplorable feature of cases where houses of ill-fame were kept by mothers and their daughters: for instance, two mothers with four daughters each; five mothers with three daughters each; and so on to twenty-four mothers with one daughter each. Unhappily this im-

morality was not confined to the lowest ranks. A further revelational condition was proven by the fact of sisters leading together the life of prostitution. In one case six sisters, and the numbers graduating through a series to eighteen instances of two sisters each engaged together in prostitution. In an atrocious case in London, a degraded woman was prosecuted for having seduced children into her brothel. This woman was the mother of thirteen daughters—all prostitutes, or kept houses of ill-fame. Such cases were not rare in London. In one of the hospitals were met five young girls affected with shameful disease, at ages of thirteen, twelve, eleven, nine and eight respectively. Three of these girls had been seduced in their mother's house. These revolting citations of inhuman degradation in the Old World less than fifty years ago serve to hint at transported shadows reaching our shores these latter years with the excessive advent of uncleanly emigrants of low degree of intelligence and moral standard, and from whom is being spread infectious disease of correspondingly intense virulence. Several years ago a prominent educated Negro writer deprecated in public print the social evils resulting from the one-room cabin as habitation by the freedfolk families of humbler degree for many years after their emancipation, and exhorted all Negro parents to strive to surmount the demoralizing penchant naturally incident to all ages herding shamelessly into one room, by seeking homes with suitable accommodations promotive of civil decency and moral progress. The situation of the Negro class in rural districts of the South and elsewhere is rapidly improving in this respect; but in cities the overcrowding into rooms does not abate the miscellaneous tendency to propagation of venereal disease in extremely pungent forms. I have seen a young black man in bed disgustingly scourged with gonorrhea, while the young woman to whom he claimed to have been lately married looked on with most nonchalant simplicity. This couple lived in one room. Three other "families" abided in the six-room house. Likewise, in this city is a section known as "Little Italy," located in the old-time heart of the town, now adjacent to the major slum area. This location is crammed full of common grade Italians, Poles, Russian Jews and other European refugees among whom it is the general impression that loose habits and rabid sexual disease resample the baser vogue of the old country in the garb of bold, unblushing license. Three men have stated to me that the enticing smile and sparkling black eye of the young Russian Jewess had wrought acutest infection. The theology of superior health fronts to face with practical virtue. With the influx of nested foreign virus drifting to our shores with the steady stream of emigration, it is the hypocrisy of sanitary ethics to shelter specific danger behind the shield of shying sentiment, instead of a search to determine whether women from foreign haunts should be turned loose among population here, or first assigned to the hospital for purification. Look at public protection!

On its darker side, prostitution obliterates conscience, drowns shame in strong drink, incites to and formulates crimes, develops the most audacious criminals, consorts with thieves and political rounders, revels with disturbers of civil peace and public safety, constitutes a spreading and abiding agency of social demoralization. But the haunts of prostitution, whether obscure or blazoned with influential effrontery, always

harbor a throbbing dread of the law's invasion, of plotted raid and exposing arrest, of the damage to consignment and restraints of prison cells. As already inferred, such is the clannish creed of conservatism among ill-fame women that they persistently tempt chances, obstinately decline to relinquish daily and nightly risks, but stoically endure the physical and mental hardships of their peculiar infatuations till the blow falls, till the raid comes, till the arrest is made on complaint of some spying agent or trustful patron who has lost purse or watch, till the prison cell is faced, till the term of penal sentence has been served and liberty again restored,—when lo! instead of deserting such ill-fated line of life, the moral delinquent hastens to rejoin old comrades, hastens to renew interrupted excitements and resume her accustomed role of sexual service for the disgraceful profits that it wins.

The social evil problem presents another phase. "For a young woman of your attractions and abilities, why do you elect to follow this adventurous, promiscuous mode of life?" I asked an educated upper class "clandestine" of the demi-monde to whom I had been called when ill. She was comfortably situated in rooms, but frequented certain better class houses of assignation. "Because it is my life!" she frankly replied, "because it becomes the life of every woman in similar situation to exact tribute from every other man for revenge on the man who first showed the path that led away from virtue. What else can I do? I can go nowhere and honestly pose as a virtuous woman! This mode of life is what remains to me, and I make the most of it that I can!"

What could be more icy and heartless, and yet more pathetic than this stoic declaration of an educated daughter of good family connection, and whose father had been once nominated for governor of a neighboring State? And yet, when refined to its essence, the life she lived was the life she voluntarily elected to live, sugared as it was by a sentiment of restitution for her initial temptation to accept access to the mysteries and adventures of demi-monde experience. But the complexity of the social evil question does not solve at this salient of disclosure. In pressing my investigations I discerned, furthermore, that the intelligent, more refined of demi-monde circles are acutely sensitive to the ethical barriers projected by those considered socially virtuous of the sex against those reputed as belonging to the morally "improper" class of women. "We are made to know," it was averred, "that we are considered 'outcasts' because, as result of environment or of possible rudimentary physical differences for which we certainly are not to blame, we are cast outside of the social sphere of more favored women, women who probably in no other aspect are our superiors. We are impressively reminded of, and fully accept this line of social discrimination raised by the more virtuous class of women,—yet it is a cutting hardship to realize, each way we look, that we are by such regarded with little less than chilling distrust, even though we are yet as human as they."

The social boycott repulse thus holds the woman of questioned repute to the more genial zone of her caste, where she can feel at home, because relieved from the repressive drafts of bleak atmosphere which she meets across the clouded boundary. But here again the resourceful woman of demi-monde instincts wins an equivocal retaliation. Because of the sexual tempera-

ment that inclines her relatively to promiscuous relations when pleased, and, reasoning that she is, therefore, held in perpetual rebuke by the sterling self-poised virtue of the world, for reasons of the genital accident that prompts her to erotic impulse, she turns intrigante to pique the exalted equanimity of censorious Purity by embracing adventitious chances for making secret conquest of Purity's honored husband or brother, or son when available for the enticing courts of coquetry and dalliance. Withal there are among them many women of accomplishments and truly charitable nature, of benevolent heart and liberal sympathies, who with prompt alacrity would do more to relieve the unfortunate, when in trouble or need, than would many of the conservative class of untamed glacial virtue, who disdainfully push away to the other side, with gloss of broadcloth or rustle of silk and cologned lace at their nostrils, for fear of touching the footprints of impurity where a "fallen woman" was offering Samaritan hospitality to relieve a wayfarer's wants.

No human ingenuity has successfully suppressed the social evil. No speculative moralizing régime by those least familiar with the physiological problem, and least qualified to interpret its elementary significance, has ever interrupted or reduced its prevalence. All exploitive talk about the salubrious discipline of police raids and imprisonment to "tear it up by the roots" is mere verbose declamation soaring above the deep soil of natural and perpetual production. Against its effects are the eternal behests of sexual stimuli, operative hourly, pulse by pulse, with the invitations and intuitions of pleasure, with the vigor of unquenched vitality. Human nature did not functionate itself according to any religious creed or churchly dogma, but hinges tenaciously along ordained lines of spontaneous destiny, save as guarded and trained to the higher refinements of purpose. We cannot review gigantic natural propensities in the limelight splendors painted by "social purity" ethics in exalted minds that were never environed by the chains of degenerate bias and callous habits. If at all, we must sensibly recognize all social sores as they exist. Venereal corrosion, gangrenous inroads of cancer, scrofula and tuberculosis cannot be transposed into staged pantomime of inoperative harmlessness by any idealizing process of mental transfiguration to mask the peril that is in stealthy activity among the world's population. Veiling a thief with the silken sentiment of a popular crotchet does not make him a man safe to trust. Rescue homes for girls who have drifted into lines of ill-fame accomplish but a mere something—and that not for the diseased. The number sheltered till correct habits of usefulness may be formed is incomparably small. In many cases these helped girls slip away to return to former haunts and associates.

All in all considered, it does seem sensible reasoning for cities and Commonwealths to authoritatively recognize the most subtle and serious conditions of the social evil disorders, to officially temper these conditions by rational protective hygienic and regulative policy, that measurably limits the areas, and the dangers to public health, that are otherwise indifferently subdivided and multiplied by the present scattering plan of inhuman police raids. Small pox, typhoid fever, yellow fever, are assiduously looked after along lines of prevention. Children's throats are examined in schools for detection of approach of diphtheria. The arms of female teachers are officially inspected to determine the defensive

evidences of vaccinations. Food products are scrutinized for the safety of the health of the public. Why should not those engaged in scattering abroad infective poisons of secret disorders among humanity come promptly and systematically under wise medical detection, isolation and relief—not by the exigencies of chance—not after city-full conflagrations from heedless neglect—but by practical sanity of authoritative intercession? Whispered suggestion, vehement denunciation, demands for unseemly police outrage of ghastly night arrests with the swoop of raiding squads in uniform who have first tempted the touch of vice through detective agents on search for evidence on which to base a charge,—is assuredly not administering justice on the higher plane of civic decency and Christian grace.
1726 North Twenty-second Street.

PROTECTION FROM TUBERCULAR DISEASE.

BY M. E. FITCH, M.D.

THIS sanitary problem is now attracting the attention of our prison authorities. Reed recently reported that the prophylaxis in Ohio prisons were as follows: The tubercular prisoners were separated from the non-tubercular by giving them a separate cell house and having them eat at separate tables, while receptacles for sputum containing sawdust dampened with a solution of crude carbolic acid, were placed throughout the grounds and shops. The dust about the ground was done away with by sprinkling once a day and all sweeping in the cell houses and halls was done after first sprinkling sawdust wet with a solution of crude carbolic acid. As to the treatment of the tubercular prisoners, those who were able to work were given an occupation suitable to their condition, while those too weak to work were given benches in a sunny part of the grounds where they could sit out of doors all day, but all who were able were compelled to take regular exercise. Better food was supplied, and drugs administered, such as cod liver oil, syrup of the iodid of iron and others as the case suggested.

Reed states that a year has now passed since this work was started, and while he does not possess accurate statistics as to the number of inmates afflicted with tuberculosis at present in the institution, many facts go to show that there has been a decrease in the disease: thus, during the year ending August 1, 1904, there were ten deaths from tuberculosis, which contrast favorably with the eighteen deaths that occurred during the previous year. After making tuberculin tests he found that the great majority of men who gave a reaction were those who were constantly coming to morning sick call, and during the past year the total number of inmates attending sick call was 40 per cent. less than the year before.

A large sailing vessel left Great Britain about the end of January of this year for a long voyage in warm latitudes, carrying about fifty tubercular patients and a number of other invalids. The consumptives were to live on deck in the open air night and day, constantly breathing absolutely pure air containing much ozone; during the trip the vessel called at such ports as Gibraltar, Canary Islands, Rio Janeiro, River Platte, Table Bay, St. Helena, Pernambuco and West Indies. Time would be given to the passengers to see something of the countries and their peoples, and to learn something of their customs and manners, and

everything was done on board to make time pass pleasantly, music, games of all kinds, books, fishing and boat sailing when possible, and it is also proposed to teach foreign languages. An efficient staff of physicians and nurses accompanied the vessel.

A classification of pulmonary tuberculosis and phthisis on a clinical basis was offered recently by von Ruck; it reflects the gravity of the cases grouped together, and has the great additional advantage of not requiring extraordinary skill and experience in classifying a given case.

A. Inactive, closed tuberculosis, latent form, free from fever, reacting to tuberculin, with varied extent of physical signs. B. Active, closed tuberculosis, with mild tuberculous fever (100.5 F. Maximum); otherwise same as A.

Pulmonary Phthisis.—Class I. Non Febrile Cases.

First Stage.—A. Inactive, initial phthisis, without demonstrable cavity formation, with bacillary sputum; total quantity not exceeding 1-2 ounce in 24 hours; passive secondary infection; with or without mild complications on the part of pleura. Temperature normal to 99 F. **Second Stage.**—A. Inactive phthisis, with single, small, demonstrable cavity formation. Expectoration not exceeding 1 ounce in 24 hours. Passive secondary infection; with or without mild complications on part of larynx, pleura or both. Temperature normal to 99.2 F. **Third Stage.**—A. Inactive, advanced, cavernous phthisis with large or multiple cavity formation. Expectoration exceeding 1 ounce in 24 hours. Passive secondary infection; serious complications, tuberculous or otherwise, on the part of the larynx, pleura, intestine, or other organs. Temperature subnormal to 99.5 F. **Class II. Febrile cases.** **First Stage.**—B. Active, initial phthisis, with moderate tuberculous with that of subacute secondary infection. Expectoration not exceeding 1-2 ounce in 24 hours, with or without mild complications on part of pleura. Temperature not exceeding 101.5 F. **Second Stage.**—B. Active phthisis, with tuberculous fever, or combined secondary fever; demonstrable cavity formation. Expectoration not exceeding 1 ounce in 24 hours. Mild complications on part of pleura or larynx or both. Temperature not exceeding 102.5 F. **Third Stage.**—B. Active, advanced, cavernous phthisis, with tuberculous or secondary fever of any degree. Large, single or multiple cavity formation. Expectoration exceeding 1 ounce in 24 hours. Complications same as under A, or caseous pneumonia, diffused mixed infection, acute miliary disseminations.

Merieux suggests a new tuberculin test by reversing the usual technique; tuberculin injected into a tuberculous person causes a specific thermic reaction, while a similar specific thermic reaction is observed in tuberculous guinea pigs after injection of organic fluid from a tuberculous human being. The classic thermic reaction was always positive in the cases of known clinical tuberculosis, but on the other hand, there was no reaction in the absence of clinical tuberculosis. In case of dubious results, the test was repeated with larger amounts of the human fluid; from .2 to 2 c.c. being used. This "indirect tuberculin reaction" is being studied in cases of surgical tuberculosis, meningitis, and Merieux is inclined to believe that this specific reaction of the toxin secreted in the diseased organism might be tried in the majority of

microbian diseases accompanied by sufficient production of toxins; and this method might prove useful for the study of the toxicity of a certain microbe in a given case.

When symptoms of pulmonary tuberculosis are found careful inquiry commonly reveals a clear history of prolonged contact with a phthisical person for a period of two, three, four, or even more years, or sometimes there is a history of pleurisy three, four, and even more years previously; in all these cases the disease began at the time of contact, and since then it spread very slowly in the lung, until it attained such an extension as to show pulmonary tuberculosis. Practically, a person with tuberculosis may have no possibility of knowing that he is affected by such a disease; it is now generally admitted that the specific bacillus enters the lungs solely by the respiratory passages, but as it is proved that medical men, nurses, hospital servants, etc., abundantly inspire the bacillus of tuberculosis without becoming consumptive, so we must ask how this immunity is explained. In about 90 per cent. of all cases tuberculosis begins at the apex of one lung. The cause of this seems to be the weak respiration of this part of the lung, lying under the clavicle, a rigid bone, and, unlike the ribs, not following the movements of respiration so that in ordinary respiration the apex does not expand itself, and the epithelial cells of its lesser bronchioles are in contact with each other, so that their action is stopped. This makes the most favorable condition for allowing the bacillus to effect a lodgment and form a tubercle. The influence of corsets as a cause of pulmonary consumption is thus explained for example, in Italy, corsets are of general use by women and very young girls, in town and country. This has a direct relation to the constant higher death rate from pulmonary tuberculosis in women that we have solely at the age during which the influence of stays is felt, namely, from 5 to 48 or 50 years of age. Before or after this period pulmonary consumption is the same in both sexes, or even higher in males.

The general rule that every cause interfering with free respiration is a predisposing cause of pulmonary tuberculosis, holds good for the influence of corsets in controlling the movements of respiration, thus, in Italy, while the death rate from tuberculosis in the 206 largest towns has been 25 for every 100,000 inhabitants, in all the other towns and villages, which have a population of less than 15,000 inhabitants, the same death rate has only been 16.5. Before the abolition of slavery in this country, consumption was unknown among the negroes, who lived constantly in the open country; after abolition they entered the crowded towns, and now we know that they are more subject than white men to phthisis. In England, as a result of the great improvement in sanitation, particularly during the second half of the century just past, all of which tended to the betterment of the respiration of the population at large, the death rate from consumption was reduced from 26.8 every 100,000 inhabitants, as it had been during the ten years 1851-1860, to 14.6 as it was during the five years 1891-1895. These facts prove that the great predisposing cause of pulmonary consumption is bad respiration in the broadest sense. When the respiratory movements are interfered with, or when we inhale an impure air, as happens in large towns, where over-

crowding is usual, the action of the bronchial epithelium is interfered with, especially at the apex of the lungs. Impure air has the effect of introducing on the mucous bronchial membrane a quantity of irritating substances which produce local congestion, and interfere with the action of the ciliated cells; these conditions are extremely favorable to the tubercle bacillus. People who breathe fresh open air do not become tuberculous, although they sometimes inhale the specific bacillus, as happens to every one in the present condition of society. When the bacillus finds the proper conditions in the lung tissues for development it produces the well-known tubercle. If it enters the lymphatic vessels it is brought to the bronchial lymphatic glands, which enlarge, and form a great barrier to its progress; one tubercle produces another, making a local, though very limited infiltration of several tubercles. During this stage of the disease it is impossible for the patient to suspect its existence, unless when some vessels are attacked, and a more or less considerable hemorrhage ensues. Afterwards the bacilli are brought into the bronchi, and driven to other spots by the act of respiration; if a suitable condition exists, they give rise to new tubercles. Flügge has proved that when a phthisical person coughs or sneezes, or speaks aloud, he emits a quantity of bacilli; in the bronchi of tuberculous persons, many bacilli are present, which are driven to other points of the lungs by the act of inspiration. This is perhaps the principal way by which the bacilli of tuberculosis spread in the lungs, although lymphatics may help their diffusion, but in less degree. When tuberculosis begins in one lung, it diffuses to the other; this extension cannot be explained as occurring by way of the lymphatic vessels; it is the result of inspiration. In cutaneous tuberculosis, where the bacilli can be only spread by a process of continuity and by the lymphatic vessels, the process of the disease is slow; the same thing would happen in the lungs were it not for the aid of inspiration which brings bacilli into several parts of both lungs, disseminating the disease. A pure tubercular disease produced only by the bacilli of tuberculosis exists, shows a slow progress. In lupus, in glandular tuberculous enlargement, in caries of the bones, where the bacillus works by itself progress is far more chronic than in tuberculosis of the lungs; and this difference may be easily explained when the conditions surrounding tubercles in the lungs are considered. When the tubercles degenerate and open, being in direct communication with the external atmosphere, the common pyogenic bacilli of the air are constantly poured upon them in the proportion of about 28,000 times every twenty-four hours. The little bacillary sores are not protected from these secondary infections, as external sores can be protected by dressings, and there occurs what happened in our hospitals before the introduction of antiseptic dressing; the symptoms are strikingly the same; chill, sometimes shiverings, pulse from 100 to 130, more or less high temperature, profuse sweating, great emaciation. The product of this secondary infection is rapid destruction of lung tissues, with abundant formation of pus, and lung sepsis, with abundant expectoration, formation of cavities of every description, and death from the effects of sepsis. A small quantity of lung is sufficient for maintaining life in fair health, and certainly death from tuberculosis never happens for want of breath-

ing tissue, but always from the effects of the poisonous products of the secondary infection of pure bacillary tubercle; the specific bacillus is the cause of tubercle, but the pure tubercle would perhaps never kill, or certainly not for many years; the cause of death being the secondary infection.

The bacillus of tuberculosis very often circulates in the blood, so much so that it has been found in the milk of tuberculous cows and of tuberculous women, without lesion of udder or breast. Tubercular meningitis, the solitary tubercle of the brain, tuberculosis of the joints, of the bones, etc., can only be explained by admitting that the specific bacillus thus circulates in the blood. The placental capillary vessels are larger than the bacillus of tuberculosis, and several cases have been examined of infants born alive from tuberculous mothers, who were found tuberculous a few days after their birth, when they died, as proved by clinical observations, for practitioners frequently observe a child die of some form of tuberculosis born of a tuberculous woman.

Those medical men who deny heredity to tuberculosis cite the greater number of deaths from *tabes mesenterica* in striking contrast with the relatively small number from phthisis in proof of their opinion; the great number of deaths from *tabes mesenterica* is claimed to be due to the influence of milk from tuberculous cows, while the lungs, upon which tuberculous milk has no influence, are much less subject to tuberculosis.

The rational treatment of pulmonary tuberculosis must depend on the knowledge that we have of the disease; and we know that pulmonary tuberculosis is caused by a resistant bacillus, which produces a neoformation, in which it lives; this little tumor, or tubercle, being entirely without vessels. The tuberculous sore is afterward infected by the common pyogenic micro-organisms of the air, giving rise to toxic products, which are absorbed, and cause all the most alarming symptoms of the disease, and finally death. From this we may learn that remedies given by the mouth are useless, and for two thousand years probably have not saved one single consumptive person from death. To be effective they must be diluted beforehand in our fourteen pints of blood, and till now we have no medicine whatever which could be prescribed in such a concentrated form as to destroy the specific bacillus without first killing the less resistant cells of which our body is formed. All medicines introduced into the blood might prove of a certain utility against some effects of the disease, and so counteract the effects of toxic products in the blood, etc., but they are certainly useless as specifics. There is not much hope of discovering a specific serum which could only act on the specific bacilli, while our most dreaded enemy must be the secondary infection, thus the greatest aims of the practitioner should be to prevent secondary infections.

Knopf has written most practically of all authorities on the open-air treatment; he says in a recent issue of the *New York Medical Journal* to give the tuberculous patients the greatest possible number of hours in the twenty-four, is the object of modern phthisiotherapy; this constant exposure to the fresh, pure air is, of course, obtainable in the perfect way in the specially constructed sanatorium where the patients recline on comfortable chairs in the open rest cure gallery during the day, and the beds are

moved on to the open veranda at night. To prove the same advantages for the large number of consumptives who cannot go to the sanatorium, many appliances have been devised, thus in country homes suitable extensions can often be made with relatively little expense. In the country it is often possible, even for the poorer patient to build a so-called sleeping shack, which should preferably have southern exposure. It could then serve as a rest cure gallery by day and as an open air sleeping place at night. In large cities, particularly in the homes of the poor, the flat roof and the fire escape have been used for the purpose of giving the open-air treatment during the day. Knopf does not recommend the use of the fire escape, as to have it encumbered might endanger the lives of the other inmates in case of fire; but a steamer chair, placed on the roof, will answer the purpose of a costly typical sanatorium reclining chair; and a large umbrella will answer the purpose of the awning. For patients in better circumstances, who have a little garden, a yard, or a convenient flat roof, a half tent may replace the rest cure gallery of the sanatorium. This half tent is composed of a frame of steel tubing, which can be folded together when not in use; over this frame strong sail duck is stretched and secured by snap buttons on the inside, so as to completely protect the patient against wind and sun. To prevent the tent from being overturned by the wind, the frame has ground spikes holding securely. The reclining chair is placed in this half tent in such a manner that the floor bracing, attached to the frame, is held down by the chair adding to its security.

It is hard to make such a device practical and popular among this class of patients; in a New York tenement house the protruding of a cot through the window would attract unpleasant attention, and with the phthisiophobia that exists in many minds, the unfortunate sufferer might be obliged to move. The cost of the aerarium may bring it beyond the reach of the poor. "The window tent" is an awning which, instead of being placed outside of the window, is attached to the inside of the room, so constructed that air from the room cannot enter nor mix with the air in the tent. The patient lying on the bed, placed parallel with the window, has his head and shoulders resting in the tent; the ventilation is as nearly perfect as can be produced with so cheap a device as described by Knopf. In the lower half of an American window is placed the frame to which is attached the awning, stretched over a quarter circle, with a radius of 40 inches; the frame of the tent does not quite fully fill the lower half of the window; a space of about three inches is left for the escape of the warm air in the room. By lowering the window this space can be reduced to one inch or less, according to need. On extremely cold and wintry nights there need not be left any open space at all above the tent frame. The patient's breath will rise to the top of the tent and the form of the tent aids in the ventilation, the awning being made of stout duck and waterproof. The patient enters the tent through a flap which can be made either on the right or the left side of the tent. The lower edges of the canvas that come at the head and side of the bed are long enough to be tucked well under the mattress to exclude the air from the room and protect the patient from draught. The flap is so constructed as to admit of easy access to the pa-

tient. In order to protect the patient from storms the roof of the tent has been extended slightly beyond the window, and a roller curtain has been placed in the window itself. This curtain running from above downwards can be lowered at the patient's convenience. The protruding portion or peak of the tent is not always essential, particularly if the house has a sufficient projection over the window, or the patient's room is located under the eaves in the upper story; should the peak be necessary, it is best to arrange it by the aid of hinges, so that it can be folded down and the whole tent can be moved a few inches into the room to facilitate the closing of the window if desirable. This withdrawing the tent for the purpose of closing the window is essential in order that the room may become warm for the patient to dress or to take his cold sponging. The patient's body is kept thoroughly warm, and he only receives the air in his face; the cot can be placed by the window to suit his preference for sleeping on his right or left side, so that he has the air most of the time in his face. This arrangement will not attract any attention from the outside and it can be placed alongside of the window, which will be much more convenient for the majority of the poor who have small rooms. If, however, the bed must be placed at a right angle to the window, the flap can be made in the middle of the tent. When the aerarium referred to is used the bed has to extend about one-third out of the window and must, of course, invariably be placed at a right angle to the window sill. The raising of the bed can be accomplished by having a few additional inches of iron piping attached to the legs by a plumber, or one handy with tools; while raising a wooden bed can be accomplished still easier. The frame of the window tent can be made to fit any window, and, owing to the simplicity of the window tent, it can be manufactured for about half of the cost of that of the aerarium. Laying aside the economic advantages to a poor family when not obliged to heat more than one room, the patient feels that he does not deprive his loved ones comfort and warmth and that he is less a burden, while the other members of the family, on the other hand, feel that they can give to the patient all the air he needs and that he himself need not suffer for their comfort.

In winter, the patient's bed must be covered with a sufficient number of blankets to assure his absolute warmth throughout the night, but this covering should not be so heavy as to press down upon the body and make the patient feel uncomfortable. The light and tightly woven blanket is a better protection than the loosely woven one. To the poor, whose disposal of blankets is often very limited, several layers of newspapers between the coverings are a good substitute. A woolen helmet, in addition to a sweater, may be used in extremely cold weather, and some patients will complain that the bright light awakens them in the morning too early and that they have difficulty in going to sleep again; here counsel the patient to have some light weight but dark colored material (such as black lisle thread hose), to put over his eyes, and this usually suffices to obviate this inconvenience. For a cuspidor Knopf found that a tightly closing pocket flask, which can be manipulated with one hand, and when not in use placed under the pillow, is the most suitable, for the patient can expect-

torate into such a flask without uncovering himself. Knopf's latest model differs from the former ones by its greater simplicity and durability; it is made of metal and is, of course, unbreakable, oval in shape, about $2\frac{1}{2}$ inches in height and $2\frac{1}{4}$ inches in its largest diameter. It is made according to the principle of the irreversible inkstand, and hot water suffices for its thorough cleaning. A urinal should also be at the bedside so that the patient will not have to leave the bed in the night. Prolonged rest cure in bed will be more endurable when the patient is permitted to look out on the street and watch life there rather than be obliged to gaze at the four walls of his room, or simply at the awning, as in the *aërium*. When arranging for the rest cure on the reclining chair during the day in his half tent in the garden, on the veranda, in the sleeping shack, on the roof, or on a balcony, always bear in mind that it is much more agreeable and conducive to the well being of the patient when taking the cure, to have a pleasant view, thus, in building sanatoria, the greatest attention is paid to the proper selection of the place for rest cure gallery or veranda. The more pleasant and entertaining the outlook from these places the more certain is one to keep the patients quiet and restful. Patients who can usually be persuaded with difficulty to sleep with the window wide open will not hesitate when they have this tent as an inducement. Warn against overdoing the rest cure. In the experience of Knopf lying for hours and hours on the back, even in the open air, has resulted, in a number of instances, in a hypostatic congestion of the lungs; guard against this when prescribing the rest cure in bed or on the veranda. Insist that the patient change his position from time to time and take frequent deep inspirations. If the patient is a febrile, or but very slightly feverish, he can rise from his chair every half hour to take some breathing exercises with movement of the arms; this doing something every half hour will make the enforced idleness less monotonous and unpleasant. A febrile patient should also have some walking exercises, and even the slightly feverish patient should take short walks when his temperature is normal. A good means of determining the amount of exercises to be allowed a tuberculous patient is to take his rectal temperature before and after exercising; thus, if the patient can walk for half an hour with only such slight increase of temperature as must be considered physiological after such exercise, he may the next day walk a little further; but if the increase of temperature is pathological, it is an indication that the patient has overdone and he must exercise less the following day. A temperature of about a hundred degrees is an indication for absolute rest. We should, of course, allow the patient to read during cure during the day; but the conscientious phthisiotherapist will even select suitable literature; avoid all unpleasant exciting novels and detective stories, and all work which demands stooping over should be strictly forbidden. It goes without saying that one does not wish to expose the patient for eight or nine hours to the cool atmosphere on one of the coldest nights of our Eastern winters the first time he tries it, but the patient should be gradually accustomed to the exposure to night and day air. In winter he should never be placed in the window tent or on the veranda at night without having been gradually exposed to the open air during the day, and the patient

who has not been accustomed to the open-air treatment should be placed on the reclining chair in front of the open window or on the veranda during the warmest hours of the day, preferably when the sun shines, and the number of hours of exposure to the open air should then be gradually increased. After a week or ten days he can begin with a few hours of sleeping in the window tent or on the veranda at night time; the patient will usually have improved so that he will himself be anxious to try sleeping outdoors the entire night. The dread of serious consequences that some patients feel must be taken into consideration, and here perhaps more than in any other phase of the management of tuberculous patients firmness on the part of the physician is necessary. In winter the patient should always dress and undress in a warm room and also take his massage and his hydrotherapeutic applications, be they simply friction with cold water, ablutions, or complete douches, in a warm room with a temperature of at least 72 degrees F.

Knopf believes that there is no region in the United States where this treatment cannot be carried out; the best proof that it is feasible in our own climate, in New York City, has been shown by the results obtained at the Riverside Sanatorium on North Brother's Island, at the Phthisis Infirmary at Blackwell's Island, and in the tents on the Bellevue Hospital grounds.

THE DUALITY OF ALL ORGANIC STRUCTURE.

BY F. B. BRUBAKER, M.D., MIFFLINBURG, PA.

PART I.

HAVING seen in a former essay that a duality of physical phenomena is maintained throughout higher life, as it relates to the animal kingdom, it must follow as a natural consequence therefrom that while this relates directly to function, being protoplasmic, or nutritional on the one side, and nervous or vital on the other, that a like duality can be traced in organic development as it relates to structure. Indeed, of the two truths, the latter is certainly the more evident from an objective standpoint, as perhaps experimental, and yet as no one can truthfully deny, the individuality of nervous as contrasted minutely with protoplasmic force, each being a thing in itself and conclusive with function; and so likewise becomes plainly manifest an accompanying duality of organic development at once structural. Nor is this fact to be wondered at when we remember that no matter howsoever lowly, or minute, an organism may be in the scale of life; its maintenance therein is in all cases dependant on the union of two sexual elements. True it is, that these two elements or forces are oftentimes combined in the animal scale low down, or anywhere in the vegetable, and yet we are loathe not to believe that having become a fixed and stable quality or quantity in the higher animal, and single, has not been the direct result, or at least accompaniment of man's duality of functional activity, but be this as it may, and starting with single cell organisms we find that they occasionally are seen to come together, and, mixing their constituent protoplasmic streams again separate, or break up into a large number of sporules. In short, there is a birth to every organic cell and in the protozoa, composed as they are of but single cells, whose protoplasm as we have just seen, conjugates is to be found the nucleus of all

future and higher reproduction by two sexual elements. If we confine our attention exclusively to plant life we are astonished at the multiplicity of ways in which reproduction may be accomplished. Many species of plants, including a number of common grasses, spread by means of vigorous fleshy rootstocks; which push out laterally in all directions from the parent plant, developing rootlets, and throwing up the stems of new plants at intervals. Again some plants throw out trailing branches or runners, which take root at their ends, or at joints; thus producing new plants. The strawberry is an excellent example of this class of reproduction, or rather perpetuation, for to my mind the term or word reproduction should be restricted to where two sexual elements combine. Many plants, therefore, perpetuate themselves by means of suckers and sprouts sent up from lateral roots. Nursery practices being greatly facilitated by this natural tendency in plants which perpetuate their kind true to variety, some trees likewise following this plan, as the plum. Bulbs and corns are other means of perpetuation, bulbs usually form at, or just beneath, the surface of the ground; and may be divided into general classes. First, those composed of scales which are more or less narrow and loose as in the lily, and second, those composed of more or less continuous and close fitting layers, or plates, as in the onion, bulbs often divide naturally into two or more parts, or may be so divided artificially, each of which part serves the purpose of a complete bulb in propagation; while in other cases small bulbs, bulbets, or "daughter bulbs," develop around the "mother bulb," and are used in propagation. So likewise we have perpetuation of vegetable life by means of cuttings, a cutting being a detached portion of a plant inserted in soil or in water for the purpose of producing a new plant. Now this same fact finds its counterpart in animal life of lower origin; many of which perpetuate their kind to a vast extent by segmentation, or allied processes, all these undisputed facts seemingly going to disprove what I am about to prove, for upon closer examination we find that, although perpetuation of organic forms is possible by means other than the direct union of two sexual elements, this being so found within the vegetable kingdom at any height, and in the animal, in the lower order of life; yet, withal, examination proves the fact that granting the possibility of the same it is largely by means artificial, for in a state of nature most species of plants which perpetuate their kind by other means, also produce seeds, and what is more, that energetic pioneer in the primitive world of Helminthology and Parasitology, the late Prof. Joseph Leidy, ably remarked: "The power of reproduction is limited to each individual, plants may be reproduced to an incalculable extent by cuttings or otherwise, but ultimately the power to reproduce in this manner becomes exhausted. The perennial plant puts forth Phytion after Phytion, but the seed is necessary to its perpetuation, so ultimately a recurrence to sexual admixture becomes necessary in the animal kingdom, and without which there is no preservation of species." As an example he cites the case of a worm to which he gave the name *Stylaria Fossularis*. This worm is found abundantly in ditches in the neighborhood of Philadelphia, during warm weather, and is constantly observed to be undergoing division, individuals a third of an inch long are constantly found to consist of two divisions, and occasionally in three, in various stages of development, or

progress towards separation, the divisions being composed of about 22 annulations, each possessed of a pair of fasciculi of five podal spines and two bristles. The head consists of a large lobe with a long digit-like appendage and presents an eye on each side of a large mouth, the latter opening into a capacious pharynx which afterwards contracts into a cylindrical cesophagus continuous with a well-developed intestine, but within the animal no trace of a generative apparatus can be perceived. Now in the course of a season, a single individual may reproduce some millions simply by segmentation; but as cold weather approaches we find the animal to lose this power; not resulting, however, from the influence of the cold, but from exhaustion of the power, because even if the worms be placed in a warm situation, as in the window of a warm room, where the sun may shine upon the vessel containing them, they are observed to cease division. The loss of power of this mode of reproduction is, however, compensated for by another succession of development, for the worms grow to an inch in length and are composed of sixty annulations, each being provided with double the number of podal spines within the body, an androgynous generative apparatus becoming developed, for within the ovaries are developed the ova, and within the testis, spermatozoa. Two individuals copulate, eggs contained in bottle-shaped cases are extruded, and ultimately the parent dies, while after some weeks in a warm situation the ova are hatched, the young escape, and move freely about, and soon commence to reproduce their numbers by segmentation.

Here then, we are face to face with the undeniable fact that a return to sexual intervention, or a union of two distinct sexual elements or forces is absolutely imperative, and which is first evident in protoplasm itself, and in all organic forms of life, while perpetuation by other various means, either vegetable or animal, is a thing advantageously acquired, but at the same time, artificially.

Having learned then, that a distinct and absolute union between two manifest forces is at all times prerequisite to the continuation of a species, and that where a return to this mode of reproduction is not periodically and assuredly established, the species surely dies (all other modes of perpetuation being but artificially acquired advantages), let us next inquire how this sexual union is brought about, and what are its results? First, as to plants, a mere glance at which suffices to assure the most skeptical that it is a general law of nature that flowers are adapted to be crossed at least occasionally by pollen from a distinct and distant plant, and Andrew Knight says, "Nature intended that a sexual intercourse should take place between neighboring plants of the same species." Now it must be entirely apparent that when life first appeared upon the earth, and when the varying forms thereof were only just beginning to take on a character at all complex, that is, when animal locomotion assumed an ever so primitive form, coupled with either pursuit, or escape, as prey, and as the uncertain conditions of reproduction were only just beginning to dawn upon a receptive world, that then it was that nature safeguarded her forms and rendered their perpetuation the more secure, surrounded as they were by great uncertainty because of the time and especially that ever-present uncertainty which has remained to some extent in all periods, viz.—that of sexual reproduction, that nature by investing

within one individual the power of self-impregnation, and self-fertilization, thereby ensured to a greater degree the perpetuation of the species, and thus was born hermaphroditism on the same plan, and because of the danger of extermination, lest the power of self-fertilization be retained, we are not surprised to find even today many vegetable forms vested with its power, for the more secure, the more safe any species of plant is rendered, all else being equal, and left to nature, does it depend on self-fertilization. Therefore, we find a much larger proportion of trees and bushes, having their sexes separated, than of herbaceous plants which are decidedly more exposed to enemies. But while nature has given to the individual vegetable form an hermaphroditic character in many instances, whereby she insures the same against extermination, she by no means encourages, nor indeed in many instances allows its continuous use. A union of distinct elements being the mode or plan by which she evolves the higher, for continuous self-fertilization means, in all cases, a lack of progress at all proportionate with a cross; and in most cases, a standstill, or reversion of type, if not eventually extermination, for even in the case of cleistogamic flowers, one or more is found open on each flower stalk and never absent for any long period unless the plant is transported frequently, but if left to gain a residence, open flowers are always in time formed; so that nature, as we have seen, encourages the union of distinct sexual elements, and discourages continuous self-fertilization, this being true of both kingdoms. Now, if we should look to the results of self or cross-fertilization, we shall likewise find that nature again favors the union of two sexual elements in preference to self-impregnation, numberless structures in hermaphrodite plants and animals being special adaptations between two individuals, and yet we know that even in the animal kingdom, fertile eggs may be produced without the aid of the male, as likewise there are many other methods by which organisms may be propagated asexually, but all these ways and means are but the means of a way to an end, and have as in the case of vegetable organisms been produced artificially, to serve nature through her various abnormal states to which man in his devise has led her. But we depart not from our primary proposition, which, in all cases, is, that cross-fertilization or the union of two distinct sexual elements (I mean as they appertain to two individuals, for even self-fertilization is the union of a male and female element, though combined in one individual), yet where the organisms are distinct from one another is the union beneficial, and self-fertilization injurious, this fact being easily proved by any one who will take the trouble to observe nature, and the advantage thus gained is shown by the increased height, weight, and constitutional vigor, and even fertility of the offspring, from crossed and self-fertilized flowers, and in the number of seeds produced by the parent plants. If, therefore, the ultimate aim of nature is the perpetuation of her organic forms, be they animal or vegetable, by the union of distinct and varying sexual elements, and these, as have been shown and which needs no argument in higher life as in the case of man being by the joining together of elements long differentiated and diverse, and which in the perfected state to which man has arrived is something entirely dissimilar, it becomes but natural to suppose that because of the same, man should show in the marks and delineations

of his own body, the evidence and proof of having arisen by means of a duality of forces, and this no one can deny. Therefore, we find man structurally bilateral, one-half of the body being in all cases the tenths of an inch higher or lower than its respective and accompanying half. I have taken the trouble to make a series of measurements covering at least 1,000 individuals, and I find that almost without exception, differences exist; thus in some individuals, one side of the face is decidedly lower than the other, the nostrils showing an irregular plane. In others, the height of the respective ears become the distinctive mark of the bilateral structure of man; in some, the eyes, in others the right and left eyebrows, while in many, I have studied the teeth, and I find that by an examination of the mouth this fact is plainly evident to the experienced eye, for were external observations limited to any one part, perhaps the face would give us best results; but it is by no means necessary to confine our observations to this part of the body alone, for either the arm or leg in many individuals will be found to be either longer or shorter, according to circumstances. But the student of all these measurements must remember that we are here dealing with at times but the 10,000 of an inch, and not well-defined measurements. But it is not alone to external characteristics that I would draw attention for perhaps more evident and in many cases proven by a duality of structure becomes the inner and more vital form. Thus the brain is developed in two distinct parts or hemispheres, which in all cases, where normal, shows a dual function, and in many cases a striking one, as where persons are possessed of two personalities, each stranger to the other, being at times even deplorable in their results, thus it has seemed to me, that in certain cases the court should bring into account many and diverse problems before passing upon the unchanging personality possessed by those under suspicion; but we are not here pleading an extenuation of circumstances but rather striving to show the permanency of form, and therefore, character. Again we have a duality of structure as expressed by two lungs, the same having been evolved from a lower type in which one organ proved requisite for the admission of oxygen to the body. Thus two kidneys excrete, two ears hear, two eyes see, two feet walk, two hands hold, two nostrils breathe, etc., and all this as it relates to organs which are represented by pairs, and of which an unending list might be given in the organic world, but self-evident truths being self-explanatory, it behooves us to pass to the apparent exception or contradiction of the same to prove it. First as to single organs, say the stomach, but the stomach no longer offers an apparent exception, for we have found as physicians, that the intestines (should the stomach be removed) are capable of assuming the office of the same to the complete nourishment and continued life of the individual, so that the intestines may digest, and the stomach absorb, or *vice-versa*. Should we turn our attention to the liver, here, too, do we find that a duality, both of form or structure, and likewise of function obtains, it being a double organ, the one glycogenic, the other, bile-forming, so that not only do we find within the human body a duality as represented by organs presenting themselves in pairs, but we also find that the apparent exception as represented in single organs is only seemingly so, and that on closer inspection even, they are dual, both in form and func-

tion. In a former essay I think I conclusively proved that this fact is likewise true of reproduction, for we found upon that occasion that nature has entirely safeguarded her organic forms by nourishing them while in the womb, both by the maternal circulation and also the liquor amni.

ASEPSIS AND ANTISEPSIS, AS PRACTISED AT THE JEFFERSON MEDICAL COLLEGE HOSPITAL, OF PHILADELPHIA.

BY A. J. ORENSTEIN, M.D.

IN writing of the asepsis and antiseptics practised at the Jefferson Hospital we must never lose sight of the fact that asepsis occupies by far the most important place, and is the great desideratum aimed at in all methods employed at the Jefferson Hospital. In doing aseptic work, the following conditions are essential: 1. Aseptic condition of the field of operation. 2. Aseptic condition of coverings, such as sheets, towels, etc., about the field of operation and wherever they are likely to come in contact with anything that may be used in the process of operating, or with the operator and his assistants. 3. Asepsis of all instruments, sponges, ligatures, sutures, etc., used in the operation. 4. Aseptic condition of the hands of the operator and all of his assistants who are to handle any article that is to come in contact with the field of operation. 5. Aseptic gowns and caps, to be worn by operator, assistants and nurses.

And as important as any of the foregoing: the proper preparation of the patient during the twenty-four hours immediately preceding the operation and just before operative procedures are instituted.

In the Jefferson Hospital all patients about to undergo an operation of some magnitude which involves incision through any portion of the cutaneous surface, and when the operation is not one of emergency demanding immediate operations, are prepared as follows: The patient is admitted to the hospital twenty-four hours before the time set for operation:

The evening before the operation the patient is given a warm bath and a laxative, after which the sterilization of the field of the proposed operation is carried out. The proposed field of operation and the adjacent skin surface is scrubbed with soap and water, the soap suds are rinsed off with sterile water; this is followed by alcohol, with the object of removing all the soap from the pores and also dissolving the oily secretions of the skin in the presence of which the bichloride of mercury solution 1:1,000, which follows the alcohol, is absolutely inert. After this the field of operation and the adjacent area is covered with a liberal quantity of gauze wrung out of bichloride solution 1:1,000, which dressing is fastened by a suitable bandage and allowed to remain until the patient is placed upon the operating table.

On the morning of the operation the patient is given an enema. This is done for two reasons: it empties the bowel of a possible source of infection, and prepares it for the reception of such stimulating or nutritive enemata as may be indicated later.

When the patient is anesthetized and on the operating table, the dressings are removed and an assistant, his hands prepared in the manner which will be described below, again thoroughly scrubs the field with soap and water, rinses this off with sterile wa-

ter followed by alcohol, and follows this with bichloride of mercury, 1:1,000. The patient is covered with aseptic sheets—particularly about the field of operation, and is now ready for the operator.

The operator, his assistants and the nurses sterilize their hands and arms to above the elbow in the following manner: the hands and arms are thoroughly scrubbed for five minutes with a good hand brush and plenty of soap and hot water—frequently rinsing off the suds. The nails are clipped short and the spaces under them thoroughly cleaned with an orange wood stick. The hands and arms are again scrubbed with soap and water for several minutes, paying particular attention to the nails and skin creases. The suds are rinsed off with sterile water, and a small spoonful of chloride of lime and another spoonful of sodium carbonate are placed in one hand. With the aid of a little water and rubbing between the palms this is worked into a smooth paste of cream-like consistency and liberally smeared over the hands and forearms and under the nails until "there is a sense of coolness in the palms,"—about three minutes are devoted to this stage of the procedure. Now the hands and arms are washed with sterile water, placed for a minute or two in alcohol and then scrubbed with bichloride, 1:1,000.

Some of the operators omit the chloride of lime stage.

The instruments are sterilized as follows:

All metal instruments, and such other appliances that are not injured by boiling, are boiled for ten to twenty minutes in a one per cent. solution of sodium carbonate. The sodium carbonate prevents rusting and is antiseptic. After removal from the sterilizer the instruments are placed in trays containing sterile, cool water. Instruments with wooden handles are placed in a carbolic solution 1:20 for fifteen minutes and thus sterilized. These instruments are removed from the carbolic acid solution and placed in sterile water just before the operation, so as to protect the hands from the carbolic acid.

Ligatures and Sutures:

Silk is boiled for half an hour after being wound on glass spools. It is kept in a tray containing alcohol or water. *Silk worm gut* is boiled and kept in a bichloride solution 1:1,000. *Catgut*: Van Korn catgut is sometimes used. It is especially preferred by Prof. Montgomery in his gynecological clinic.

In the general clinic catgut prepared by the quick method of Johnston is used. "The catgut is placed in ether for 24 hours; at the end of this period it is placed in a solution containing 20 grains of corrosive sublimate 100 grains of tartaric acid and 6 ounces of alcohol. The small gut is kept in this for 10 to 15 minutes, the larger gut for 20 to 30 minutes, but never longer. It is placed for keeping in a mixture containing 1 drop of chlorid of palladium to 8 ounces of alcohol (95 per cent.). At the time of operation the gut is placed in a solution one-third of which is 5 per cent. carbolic acid solution and two-thirds alcohol." (Da Costa's Manual of Modern Surgery.) Chromicized catgut is prepared by placing the gut in a 4 per cent. solution of chromic acid in water after the first stage of soaking in ether. It is then dried in a hot-air sterilizer and disinfected as above described.

Silver wire is boiled with the instruments.

Drainage tubes.

Glass tubes are seldom used. They should be boiled.

Rubber tubes are boiled in plain water and kept in a solution of mercurial bichloride.

Gauze dressings, bandages (sterile), and gauze sponges:

The soft, starchless, cheese cloth is used. The gauze is cut into suitable lengths, wrapped in a towel and this, in turn, wrapped in another towel and pinned. The package is sterilized in a steam sterilizer for one hour.

Cotton, surgeon's gowns and caps and rubber gloves are treated in a similar manner.

IODOFORM GAUZE: An emulsion of equal parts by weight of iodoform glycerin and alcohol is made, to this is added corrosive sublimate in the proportion of 1:1,000 of the mixture. The mixture is allowed to stand three days. Moist bichloride gauze is then saturated with the emulsion and allowed to drip. The gauze is then placed in glass jars for keeping.

We have endeavored in a brief and practical manner to outline of asepsis as it is practised in doing general surgical work at the Jefferson Hospital. We will now briefly consider the preparation of special parts for operation.

The Head: The head is shaved widely about the field of operation, and the ordinary technic of preparation, as already described, is carried out.

In preparing the mouth the fact must be borne in mind that it is impossible to render this cavity aseptic, and all that we may hope to accomplish is to make it somewhat less swarming with micro-organisms. All carious teeth are to be removed. The patient is instructed to use a toothbrush after each meal for several days before the operation and to employ a mild antiseptic mouth wash. In emergency work on the mouth we must content ourselves with practically nothing in the way of preparation.

Little is done in operations upon the nose, tonsils, pharynx and larynx to render the field sterile.

In operating upon the rectum and anus, the lower bowel is to be thoroughly washed out with a large enema of saline solution just before the operation.

The Vagina: The vagina is thoroughly sterilized before attempting any surgical procedure upon the female genital tract. The method recommended by Prof. Montgomery, and which he employs in his clinic is as follows:

"For this purpose a combination of creolin with green soap is very effectual, using creolin one to two drams, green soap one or two ounces to the quart of hot water. The vaginal canal should be thoroughly scrubbed with this solution, introducing two fingers wrapped with gauze. This procedure will remove all debris which may have lodged in the crypts and folds of the vagina. The solution should be removed by washing with sterilized water and then with alcohol. Creolin is not so effective an agent in sterilizing the vagina as the acid sublimate solution, but it has the advantage that it leaves the vagina soft and flexible, which is an important consideration in obstetrics as well as in all operative procedures upon the vagina. The bichlorid and carbolic solutions, on the other hand, have a constringing effect upon the vagina, which renders it less elastic." (Montgomery's Gynecology.)

Bladder: In operating upon the bladder it is advisable to have the patient in bed for a week before the operation, wash out the bladder daily with hot boric acid solution and give salol and boric acid, gr. v of each four times a day, by the mouth. The night before the

operation give a saline purge, a hot bath, and cleanse perineum, scrotum, buttocks and thighs, which are then covered with antiseptic dressings. In the morning give an enema. The bladder is washed out with boric acid solution when patient is on the operating table and a few ounces of the solution are left in the viscus.

It is hardly necessary to say that all post-operative changes of dressings are carried out under strict asepsis; with aseptic hands, instruments, etc.

In doing emergency work the preparation of the patient is necessarily dispensed with, but the field of operation and the parts about it are scrubbed the more thoroughly. In this field of surgery each individual case is "a law unto itself," and all we can do is to bear in mind the general principles of asepsis and do the best we can to carry them out.

Tic-Douloureux.—This affection is unusually distressing and very difficult to treat with satisfaction. Operation, when decided upon, is exceedingly grave and oftentimes not productive of good results. Snow (*N. Y. Med. Jour.*, Jan. 14, 1905), in twenty chronic cases he has treated, has seen none that came from dental caries or pressure on the nerve trunks, or that required excision of the nerve for relief. Each one had well-marked intranasal pressure or a collection within some of the accessory sinuses, more frequently the latter. Acute cases often accompany a cold with sinus accumulation, and pass away with abatement of the inflammation or by securing proper nasal drainage. Subacute cases may present an equal degree of pain, but do not clean up with the removal of nasal obstruction. They start anew upon slight provocation, showing that a proper outlet must be made from an affected sinus, or that some nasal pressure demands relief. With the chronic cases any or all internal sinus morbid states—pus, granulations, polyps, necrosed bone may be expected; and here a thorough cleaning out is the only hope. Local sprays or systemic remedies aid only as they reduce congestion of nasal membranes, prevent bone softening, or improve the general health. Pain, shooting from the bridge of the nose outward and upward, indicates an involvement of the anterior ethmoids. A deeper and more intense pain under or behind the eye, and sometimes apparently in the ear or temple, points to the middle and posterior ethmoids; while a still deeper, splitting pain, radiating outward from the centre, and sometimes reflected around the anterior third of the lower jaw, is relieved by opening the sphenoid. Localized pain evidences accumulations within the antrum of Highmore; here there may be also intense muscular tremor and successions of spasms, shaking the head from side to side. Migraines, characterized by steady pains reflected to some portion of the head instead of to the face, often arise from nasal pressure. One should not be disappointed if even after the removal of a septal spur, a deviation or an enlarged turbinate, all the symptoms do not disappear; there may still remain a very sensitive state of the nasal membranes, due to exposures, constipation, clogged liver, overeating, autointoxication, etc. Snow believes that quite probably most headaches depend upon an intermediate nasal pressure; certain it is that no such case should be treated without an initial rhinological examination. Probably 80 per cent. of cases of tic-douloureux arise from internasal and sinus pressure.

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The truth, the hope of any time, must always be sought in the minorities.—EMERSON.

THE HEROISMS OF MEDICAL MEN.

IN a consideration of this grateful theme, one is never at a loss for examples; indeed, such are so numerous that it is impossible for the most voluminous journal to accord them all their just due. We can here but consider types:

In June of this year Professor Mikulicz-Radecki died in Breslau. Obscure symptoms had given him uneasiness for some months, when early in December of last year, he discovered a hard mass in the epigastrium. In order not to mar his family's enjoyment of the holidays, he said nothing about his condition until after Christmas. And in January, at an exploratory laparotomy it was discovered that the pylorus was involved in a malignant growth so adherent to the parts adjacent as to be inoperable. He accepted the verdict with noble fortitude, and caused the report to be circulated that the operation had been done for the relief of an umbilical hernia. He resumed the full routine of his professional and clinical work until in April, after a severe hematemesis, he had to give up. He then became progressively weaker until his death. "It was a tragic perversity of fate to decree," that so great a contributor to the surgery of the stomach should himself fall victim to a carcinoma that upon diagnosis was found to be too far advanced for operation.

Dr. C. M. Shanely, of New Orleans, is reported by the *New York Tribune*, to be critically ill of yellow fever, "his death being expected at any moment." This physician has been in charge of the fever situation in the Barataria district. In the annals of this year's visitation of the plague, there will be recorded many instances of forgetting self amid the general desolation in fever-ridden spots, and of thinking and doing only for those in distress. Few incidents will, however, stand out more conspicuously on the page of yellow

fever history than the work of this physician and his untiring devotion to a stricken people's cause. In August, Dr. Shanely, living with his wife and children on a plantation, at Barataria, volunteered to assist Dr. Brady in handling the yellow fever situation that had developed in the lake and bayou section of that parish. Though unacclimated, being a native of South Dakota, Dr. Shanely plunged into the work. Neither was he nor any member of his family immune. His field of labor was a veritable nest of infection among fishing camps; here he helped the afflicted, screened sick-rooms, gave medicines and nursed fever patients until he was himself prostrated by the infection.

Dr. Albert B. Craig, a collaborator and subeditor of *American Medicine*, has in his noble death given a most touching example of the physician's consecration to his high calling. Summoned to the bedside of a sufferer from fulminant cerebrospinal meningitis, his sympathies aroused by the absence of all friends, and the serious condition of the patient—he gave himself literally night and day in the patient's service. "The loss of sleep, the mental strain, the extraordinary fatigue, with the exposure to infection, constituted a risk of which he was fully conscious. Upon the onset of his symptoms, he diagnosed his own case, bravely set his affairs in order, prepared his *bride of but five months* for the probable end, and to the last moment of consciousness, comforted her for her trial. His words, "I am neither ashamed nor afraid to die," contain the essence of what is noblest in our profession, and are a worthy epitaph to this latest of our medical heroes. "One such sacrifice does more for his chosen profession than hundreds of learned polemics. Though all too short, his life was glorious in its fulfillments." Thus states Dr. Gould, in an affectionate eulogy.

Dr. Thomas J. Barnardo, a sufferer from angina pectoris, died in London on September 19, last. He was born in Ireland and studied medicine in London, Edinburgh and Paris. While a student in London, his attention and compassion were excited by the woeful condition of destitute orphan children, for whom, on his own responsibility, he opened in 1867, a small house in Stepney causeway. From this slight beginning was developed a system by which many thousand offspring of the submerged tenth were rescued from misery and crime, and were converted into useful and reputable citizens. The success of his initial enterprise encouraged repetition, and new centres of refuge were established in different districts, until the Barnardo homes are now, to the number of nearly one hundred, distributed throughout London, the principal English counties, Jersey, and Canada. There are also many mission branches. In 1873, he founded his village for girls at Ilford, in Essex, where there were fifty-two cottages, each with its family of girls, under the supervision and guidance of a mother. From year to year, these and

other philanthropic enterprises have grown. The name of Barnardo is a household word throughout Great Britain. Sixty thousand waifs have been rescued, trained and started upon honorable careers through his instrumentality, of whom one-fourth have found their way to Canada and other English colonies as thriving emigrants. A year ago, when Dr. Barnardo's affection became known, and that he could no longer stand the strain imposed by his various philanthropic activities, a public meeting was held, attended by many eminent men in all walks of life, when arrangements were made for the perpetuation of the doctor's beneficent institutions. Few men have left the world, bequeathing a nobler record of wise, fruitful and self-sacrificing benevolence.

THE RELATIONSHIP OF THE DENTIST TO THE DOCTOR.

THE fact is at last recognized by advanced dentists that dentistry is a specialty of medicine, although curiously enough, it is the only specialty not requiring the degree of doctor of medicine. Until now dentistry and medicine have been studied separately; but this is a serious error, for in the mouth, as pointed out by Carlton in a recent issue of the *Journal of the American Medical Association*, begins all the processes of nutrition and metabolism which have grown so important in recent years. Neither physician nor dentist has given enough study and investigation to this region and neither knows what the other profession is doing or learning.

As surgery started with the barber, so dentistry at first was undoubtedly the extraction of aching teeth. The Germans still voice this restriction, for a German dentist is simply a "tooth doctor." On the contrary, this science now modernized requires a correct appreciation of pathology, physiology and bacteriology. As Carlton says, "Dental science has brought the disease of the mouth, jaws and teeth so obviously under the domain of general pathology, that somatic problems elsewhere presented in the body are best and easiest studied in the mouth." Again manipulative skill is more largely demanded of the modern dentist; to do his patients justice he should be truly a dental surgeon.

Unfortunately the dental schools as yet are not ready to recognize this advance in their profession. They know it exists, but competition is great and the students will go where courses are the shortest. The National Association of Dental Faculties has not accepted the four-year course or raised the standard and has in consequence struck a severe blow at the dentist's advancement.

No better rallying standard for dentists to follow has ever been promulgated than that written by Carlton

when he wrote: "The dentist of to-morrow can not be the same sort of man as the dentist of the past, whose own little sphere has been bounded by thirty-two teeth. He must be the carefully educated student in the medical branches, plus the dental specialties, and you can only make him so by following the same educational plan as in preparing the doctor of medicine. Without the requisite medical education, the ordinary mechanically expert dentist is not competent to practice his profession—he can only exercise a mechanical dexterity, but with the proper education he not only exercises the same dexterity, but he has professional ability. The mouth is a good barometer of the whole system, but your merely mechanical man, as contrasted with the dental specialist in medicine, is not competent to read it, and he does not. Why? How can any man untrained in medical science understand the problems presented to him in the condition of the mouth? We all know how exceedingly often some affection of the mouth or teeth is but an indication of a general systemic disturbance of metabolism; and, on the contrary, how frequently we see a faulty dental anatomy causing nutritive derangements which are puzzling to the physician who is ignorant of the large part played by the mouth in general alimentation. These things can not be comprehended by the merely mechanically trained dentist, as distinguished from the dental specialist, any more than they are intelligible to the physician whose training has omitted all reference to the mouth as a vital part of the alimentary canal. He who would in the future confine his professional work to conditions involving the mouth and teeth—the dental specialist—must be a broad diagnostician; he must know the relation of the mouth to the general system and he must interpret what he sees in the mouth in the light of his general medical education."

EMOTIONAL ICTERUS.

WE relate from memory Oliver Wendell Holmes' description of the case of a young woman, who immediately after marriage, was deprived of her husband by an enforced absence, for a time. Though excessively unhappy, she shed no tears; instead an intense icterus manifested itself. For the graceful details of this narrative, we must refer the reader to the incomparable original. Another case in point, is that of a soldier, noted by Gazin (*Archiv. de Médecine et de Pharmacie Militaires*), who, on receiving notice of his being sentenced to the guard-house, had a slight vertiginous attack, became pale, and immediately his face turned yellow. No other symptoms were present, except the yellowish tint to the skin of the whole body. Scientific opinions differ as to the cause and pathogenesis of emotional icterus, declares De Loffre. Hagen

considers it to be hematogenous; Tessier, that it is biliary; Guérbe, that it is caused by a latent hysteria; Kelsch, that it is microbic in origin; Douillet has demonstrated that an increase in pressure in the biliary ducts drives the bile into the hepatic veins; Potain has declared that sudden impressions act on the abdominal plexuses and produce a dilatation and paralysis of the vessels of the liver, the blood pressure being lowered as exosmosis takes place from the biliary ducts to the blood vessels; Daraignex believes it to be due to a spasmodic contraction of the biliary ducts, and a vasodilatation of the abdominal veins causing a diminished pressure in the branches of the portal vein.

We shall not here attempt to choose between these various theories. Our purpose is but to note how often the practitioner fails to observe and to take into consideration the influence of the mind upon the body. By the mind, we mean its various aspects—the will, the intellect, the numerous and interrelated emotions. It is, we repeat, too little recognized that the functions of various organs are oftentimes powerfully, nay, seriously, affected by the mind. Nor is this influence to be ignored, simply because it cannot be gauged by a chemical or pathological formula, or because it cannot be witnessed under the microscope, and in the laboratory. Who shall say to what extent thought may influence, beneficially or perversely, the formation of a drop of lymph, or a leucocyte, the product of an excretory organ. And if untoward mental influence be prolonged and oft-repeated, who shall say that this factor may not stand in a causative relation to grave affections?

Finally, as to the fortitude of the young woman to which Holmes gives poetic appreciation, it had been better for her had she wept; had she done so, she would not have had a jaundice. Tears are good for a woman—this is a physiological observation,—for a good cry shakes the thorax, causes a nervous explosion, and brings about a return to equilibrium in the organism. For a woman patient, unduly exercised over real or fancied troubles, with emotions pent up, there is no better prescription than a resort to tears. Let us refer here to a most valuable book by Dr. D. H. Tuke—*The Influence of the Mind upon the Body*,—which treatise is based upon the observation of John Hunter, that: "There is not a natural action in the body, whether involuntary or voluntary, that may not be influenced by the peculiar state of the mind at the time." This book is a veritable mine of sane observation and apt illustration. In it the physician will learn much of how to treat the mind of the patient—information which it is his duty to acquire, and which, moreover, will redound decidedly to his material profit.

Combating fatigue with nicotine, alcohol, tea or coffee is like bandaging the eyes of a watch dog, declares Prof. Schleich.

MONTAIGNE ON THE PHYSICIAN.

IT has been astutely observed by one having large insight into human nature, that the reason why the works of Montaigne endure and are perennially read, is that they furnish delectable pastime for idlers. Such idlers who read certainly do make up a proportion of humankind quite large enough to justify oft-repeated editions of these classics. Nor indeed is there any literature conforming better to a summer morning under the trees, with a land and water-scape upon which one may now and then raise his eyes from the pages.

It is in such atmosphere as this that one may best appreciate Montaigne. For it was thus that he wrote, in a rural environment, far from the seething and tumultuous life of his period—life nearly as strenuous as that of our day. And it is in this vacation spirit that this editorial idler has been browsing upon these essays. That on the physician contains some observations slightly foreign to the amiable tone which otherwise pervades these writings. For Montaigne had a decided grudge against the Faculty of his time, because they could not, or did not, relieve him of his stone in the bladder. True, Ambroise Paré might have done so, but then surgery in those days hurt; and Montaigne's nature was not of the stuff to endure without anesthesia the acute pain of such an operation. So he continued, although he was "very sensible of acute and corporal pains," to endure his stone, blaming the doctors for his sufferings until he died of its effects; and he valued life and health highly, declaring that "health is a precious thing, and the only one, in truth meriting, that a man should lay out, not only his time, sweat, labor and goods, but also his life itself to obtain it, for as much as without it life is injurious to us. Pleasure, wisdom, learning and virtue without it wither away and vanish, and in the most quaint and solid discourses that philosophy would imprint in us to the contrary, we need no more but oppose the image of Plato, being struck with an epilepsie or an apoplexy; and in this presupposition to defy him to call the rich faculties of his soul to his assistance."

The impression one gets in reading Montaigne is that there is decidedly nothing new under the sun; here, for instance, we come upon a number of pleasantries which our comic writers would have us believe are originally conceived by them. But, bless you, they are all to be found in Montaigne, who, with a probity foreign to the *morale* of the present day jokesmiths, accredited them duly to the writers of antiquity. For instance, a gentleman of the name of Nicocles (a contemporary of Plato) observes: The physicians "have this advantage, that the sun gives light to their successes, and the earth covers their failures." Again: "A physician boasting to Nicocles that his art was of great authority; 'It is so, indeed,' said Nicocles, 'that it can with impunity kill so many people.'"

Of Diogenes (the same old vagabond of disreputable memory, these twenty-five centuries past) there is this: "A poor wrestler turned physician. 'Courage,' said Diogenes to him, 'thou hast done well, for now thou wilt throw those who have formerly thrown thee.'"

Æsop (yes, the same old Æsop) offers the following: "A sick person, being asked by his physician what operation he found of the potion he had given him, 'I have sweat very much,' says the sick man. 'That is good,' says the physician; another time, having asked him how he felt after his physick, 'I have been very cold and have had a great shivering upon me,' said he. 'That is good,' replied the physician. After the third potion he asked him again how he did, 'Why, I find myself swelled and puffed up,' said he, 'as if I had a dropsie.' 'That is very well,' said the physician. One of his servants coming presently after to inquire how he felt himself. 'Truly, friend,' said he, 'with being too well, I am about to die.'"

And so on. In this archaic atmosphere one might close his eyes and almost see old Socrates, pausing in the midst of his interminable interrogatories on some Athenian street corner to hail a passing medical man, as for instance: "But now, O Æsculapian, I am told you have planted so-and-so. I wish you would drop around to my house and see what you can do for Zantippe." *Nota bene:* We should strongly advise the reader to get Prof. Dowden's book on Montaigne. It will give him solace and comfort through many a long evening.*

WHEN A MAN SHOULD RETIRE.

Let the reader feel no alarm. However our cotemporaries may misbehave in this regard, we shall never again resurrect that useless-at-forty—chloroform-at-sixty, episode of the recent *Ewigkeit*. The observations which follow are occasioned by the opinion of Prof. Chiene of Edinburgh, that there is only one sign when a man should retire—when he refuses to allow any one to help him on with his coat.

There are, in fact, other signs, but they are all to the same purport. For instance, the friend of your youth, your college chum, perhaps, has always called you dear old boy, or by some such phrase; but when he begins to change this salutation to "now, young feller," or the like, it is well for you to look in the mirror for crow'sfeet and to contemplate the graying process that seems in a most brutal and uncalled-for way to be going on about your temples. A like stage is reached when the youth of one's acquaintance speak of him as *the old man*. Then comes the time for sensible introspection; to care for the body more than was one's wont—more hours for sleep, less exposure to the elements, warm and well-clad feet, a little indiscretion heretofore harmless curtailed.

The question of the time to retire is largely involved in the sentiment, "other times, other manners." It would seem that in the present day no one wants to retire; that one dares not to retire, dreading the loneli-

ness and the dreariness that must follow upon lack of the occupation to which one has been wont. An example to this effect is that an aged man who recently died after an illness of several days. Having caught a severe cold, he persisted, despite the advice of his physicians, in going downtown to business. He would not give up his work, declaring that an old horse that once lies down never gets up. Presently he had to go to bed through sheer exhaustion, and died of pneumonia, when he might otherwise have recovered from his slight initial cold. The reason for much of this determination not to retire is the lack of other resources within one's self than that of the chief occupation in one's life. The man who has no other occupation in life than that of his business or calling—no taste for reading, no love of music or of the arts, no fad or hobby of any kind—is indeed like to have a sad and dreary old age.

We deplore here the absence of the manners and the theory of another time not so very long ago. Our meaning is amplified (though imperfectly, as shall be seen) in the life of the venerable Senator Morrill, from a New England State. It was, in early life, his ambition, as was that of his friends and neighbors, to accomplish his life work before his forty-fifth year, to accumulate before that time a competence—not many useless millions, but sufficient and adequate for the wholesome needs of a cultivated gentleman. It was his ambition, then, after his forty-fifth year to be able to devote the remainder of his life to the development of his intellect and of his tastes, to take satisfaction in the pleasure he could afford his family, to enjoy his peaceful home. It is an odd commentary upon the way in which a man is often enslaved by his environment that, having in obedience to his electorate become a United States Senator, he spent the remainder of a very long life not in the way he had designed, but in the very busy and exacting service of his countrymen.

We have certainly written thus far in vain if we cannot induce our colleagues (and Dr. Holmes,) to dip into *The Autocrat of the Breakfast Table*, about the middle of the book, beginning with *Incipit Allegoria Senectutis*.

Mineral Wealth of the United States.—According to a chart prepared by David T. Day, Ph.D., Chief of the Division of Mining and Mineral Resources of the U. S. Geologic Survey, the value of the mineral products of this country, for last year, was 1289 million dollars, slightly less than for 1903, the billion-dollar mark having been first reached in 1900. Such figures seem enormous and impress us at first thought, that so much money or its equivalent, has actually been yielded up by nature without a return. It occurred to us, however, to inquire as to the cost of tools and machinery necessary to the mining, quarrying and digging of these products, and the cost of labor involved. We have been able to learn only that in 1902, when the value of mineral products was 1260 million dollars, a little more than 628,000 wage-earners and operatives were engaged in this industry. In other words, without counting the purchase of land, taxes, etc., each man required in this industry received about \$2,000 for his year's work, out of which he had to furnish his own tools, machinery, teams, etc. Viewed in this light, the enormous figures are not so suggestive

* The J. B. Lippincott Co.

of finding money, as they seem at first. Unquestionably, some of the operators are receiving very large incomes for comparatively easy executive work, while some of the laborers are running great risks and sweating hard, to earn very small wages, yet, in the aggregate, when we consider the expensive plants required by great mines and quarries, the capital involved in land, the indirect expense of developing ore and crude material, it is obvious that mineral products are not a great source of individual wealth. Perhaps the only practical application of this aspect of the matter to our profession, is to regard the numerous prospectuses of gold mines, oil wells, borax lands, etc., with scepticism.

Another popular misconception is to the relative value of the precious metal. The most valuable mineral product is coal—445 million dollars—then copper and petroleum—a little over a hundred million dollars' worth of each. Gold occupies fourth place—84 million dollars' worth—closely followed by ordinary stone, whose value was only ten millions less. Silver comes next with a coining value of 69 millions, but with an actual value of a little less than 31 millions. This is exceeded by natural gas, which is available for use in a comparatively restricted area (38 millions) and closely followed by lead and cement (26 millions each). The only remaining products which exceed the ten-million-dollar mark are zinc, 18; ordinary brick clay, 13, and mineral waters, 10.

The relatively high value of mineral waters is especially notable when we reflect upon the ease with which they are obtained. In the commercial sense, mineral water is both a gold mine and a gold brick, for, certainly, their medicinal value in no instance approach the price which a gullible laity is willing to pay for them, and we seriously question whether our own profession is not responsible, at least in a negative way, for their fictitious valuation. Aluminum has declined in value from about half a dollar a pound in 1895 to less than 30 cents a pound in 1905, the annual consumption having increased quite steadily from less than a million to over eight million pounds, in the last nine years.

It is not especially gratifying to our pride as a nation, to note the paucity of mineral products as compared with the wide variety used. For example, beside the metals already mentioned, there are only mercury, antimony, nickel and platinum and a little concentrated tin ore, sent to England for smelting. However, the "non-metallic" products include some that we would naturally think of as metallic, as: arsenious, oxid, which in as metallic as antimony; lithium salts, barytes, cobalt oxid, manganese ore, zircon, uranium and vanadium.

Music annoying to deaf mutes is a rather odd happening reported in the lay press. Three mutes, so deaf that they could not hear their doorbell and had a latch-string contrivance which agitated a handkerchief in lieu of a bell, were so excessively exasperated by piano playing in an adjacent apartment that they broke down its door; with the result that they were haled before a magistrate. It was then an incongruous sight to see an excited deaf mute try to explain to the court in the sign language how much the music had annoyed him.

BIBLIOGRAPHICAL

The National Standard Dispensatory.—Containing the Natural History, Chemistry, Pharmacy, Actions and Uses of Medicines, including those recognized in the Pharmacopœias of the United States, Great Britain and Germany, with numerous references to other Foreign Pharmacopœias. In accordance with the United States Pharmacopœia, eighth decennial revision of 1905, by authorization of the Convention. By Hobart Amory Hare, B. Sc., M.D., Professor of Therapeutics in the Jefferson Medical College, Philadelphia, Member of the Committee of Revision of the U. S. P.; Charles Caspari, Jr., Ph.G., Phar. D., Professor of Pharmacy in the Maryland College of Pharmacy, Baltimore, Member of the Committee of Revision of the U. S. P.; and Henry H. Rusby, M.D., Professor of Botany and Materia Medica in the College of Pharmacy of the City of New York, Member of the Committee of Revision of the U. S. P. Imperial octavo, 1858 pages, 4778 engravings. Cloth, \$7.25, net; leather, \$8.00, net. Thumb-Index, 50 cents extra. Lea Brothers & Co., Publishers, Philadelphia and New York.

This work contains, by authorization of the Convention, every article in the new edition of the U. S. Pharmacopœia, together with such explanatory notes and instructions as are necessary to a full understanding of the brief official statements. In addition it covers the essentials of the latest foreign Pharmacopœias, and the very important domain of unofficial drugs and preparations so largely in use. Dr. Rusby has treated the department of Pharmacognosy, including the minor as well as the major drugs of the entire globe, and Prof. Caspari deals with Pharmacy, giving full information regarding methods and products, with descriptions and explanations of the most approved apparatus and tests, and Dr. Hare has written the section on Medical Action and Uses giving a direct and compact presentation of modern therapeutics. An Appendix of 60 pages contains all necessary tables, formulas, tests, etc., for practical use. The General Index, of about 90 pages, contains full reference, to every page in the text, making it a repertory of the world's knowledge of drugs, and the Therapeutical Index, of about 40 pages, contains, under the name of each disease, references to all the medicines employed in its treatment, leading the reader to the points in the text where the conditions indicating their employment and choice will be found. In a word, the National Standard Dispensatory is a new, practical and authoritative work containing information on all substances used in medicine and pharmacy at the present day. The volume is embellished with no fewer than 478 new and instructive engravings in the text.

Every practitioner must have such a work.

Lea's Series of Medical Epitomes.—Edited by Victor C. Pedersen, M.D.

Dayton's Epitome of the Practice of Medicine.

—A Manual for Students and Practitioners. By Hughes Dayton, M.D., Principal to the Class in Medicine, New York Hospital, Out-Patient Department; Clinical Assistant in Medicine, Vanderbilt Clinic, College of Physicians and Surgeons, Columbia University. In one 12mo volume of 324 pages. Cloth, \$1.00, net. Lea Brothers & Co., Publishers, Philadelphia and New York. 1905.

The new volume is a wonderfully comprehensive little manual, giving under each named disease—definition, etiology, pathology, symptoms, complications, diagnosis, prognosis and treatment. It is especially worthy of remark that treatment is not merely suggested, but the doses of the indicated drugs are invariably given, together with the special symptoms, which call for a change from routine therapeutics. The subject of Immunity has been succinctly treated with the assistance of Dr. T. Mitchell Prudden.

There is an astonishing amount of accurate information in these pages.

Dissecting Manual Based on Cunningham's Anatomy.—By W. H. Rockwell, Jr., M.D., Formerly Assistant Demonstrator of Anatomy in the College of Physicians and Surgeons, New York. William Wood & Company. New York. 1905. 12mo, pp. 306. Price, \$2.00.

This practical manual by an experienced author, will be found just what the student requires in the dissecting room. The text has been made as concise as possible, and by suitable divisions excessive repetitions have been avoided. The name of each muscle has been begun with a capital for an obvious reason. Cunningham's Anatomy has been followed strictly throughout, and there are bracketed numerals at the end of each paragraph, which refer to the corresponding page in the last edition of this work. The book cannot fail to fill the place intended.

Laboratory Manual of Physiology.—By Frederick C. Busch, B.S., M.D., Professor of Physiology, Medical Department, University of Buffalo. Illustrated. William Wood & Company. New York. 1905. 12mo. Pp. 206.

This little volume contains a brief and concise outline of experimental physiology for the use of students. The descriptions in the text are largely confined to methods of procedure involved in obtaining results. Descriptions of apparatus and illustrations have, to a large extent, been omitted, thereby decreasing the bulk of the volume in the interest of the class-room student. It will be found useful and handy for practical service.

Manual of Operative Surgery.—By John Fairbairn Binnie, A.M., C.M., (Aberdeen), Professor of Surgery, Kansas State University, Kansas City, Fellow of the American Surgical Association, etc. Second Edition, Revised and Enlarged. With 567 illustrations, a number of which are printed in colors. P. Blakiston's Son & Co. Philadelphia. 1905. 12mo. Pp. 655. Price, \$3.00.

The entire first edition of this valuable little book was exhausted within six months of its issue, so that a second Revised Edition is at hand within a period of nine months. In addition to this gratifying result, the book has been adopted as a manual by the United States Army, and it has been favorably received abroad. The present edition has been carefully revised and improved in various ways and the book is commended as one of the best for use in the clinic. The illustrations are excellent.

A Treatise on Diagnostic Methods of Examination.—

By Prof. Dr. H. Sahli, of Bern. Edited, with additions, by Francis P. Kinnicutt, M.D., Professor of Clinical Medicine, Columbia University, N. Y.; and Nath'l Bowditch Potter, M.D., Visiting Physician to the City Hospital and to the French Hospital; and Consulting Physician to the Manhattan State Hos-

pital, N. Y. Philadelphia and London: W. B. Saunders & Company, 1905. Octavo of 1008 pages, profusely illustrated. Cloth, \$6.50, net; half morocco, \$7.50, net.

The publication of Dr. Sahli's great work in English has been anxiously awaited. Its immediate success in Germany will certainly be repeated in this country, and the English-speaking profession owe to Messrs. W. B. Saunders & Company a debt of gratitude for their enterprise. Not only does the distinguished professor exhaustively consider all methods of examination for the purpose of diagnosis, but the explanations of clinical phenomena are given and discussed from physiologic as well as pathologic points of view, and with a thoroughness never before attempted in any clinical work. The examinations of the stomach, sputum, feces, urine, and blood are exhaustively treated. There is an article from the pen of Dr. Theodore C. Janeway giving a brief review of investigations of American and English observers upon the value of the clinical estimation of blood-pressure, with a description of some newly devised instruments. Some of the new features in the chapter on urine examination are: Seliwanow's reaction for levulose, Bial's test for pentoses, and quantitative determination of urochrome after Klemperer. Osmotic pressure and cryoscopy of the urine are also discussed at length, and a description is given of Libermann and Posner's method of staining urinary pigments. In the chemical examination much attention is directed to describing methods; and this is done so exactly that it is possible for the clinician to work according to these directions. The nervous system has been very elaborately detailed, giving unusual space to electrical examination. Indeed, the American edition of this great work contains all the material of the new fourth German edition, with which it simultaneously appears. Many new illustrations have been added by the editors. The work is indispensable to the practitioner.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition.—By Professor Dr. Carl von Noorden, Physician-in-Chief to the City Hospital, Frankfurt a. M. Authorized American translation. Edited by Boardman Reed, M.D., late Professor of Diseases of the Gastro-Intestinal Tract, Hygiene and Climatology, Temple College; and Physician to the Samaritan Hospital, Philadelphia. Translated by Florence Buchanan, D.Sc., and I. Walker Hall, M.D. Part VII. Diabetes Mellitus, its pathological chemistry and treatment. Lectures delivered in the University and Bellevue Hospital Medical College, New York. New York: E. B. Treat & Company. Small 8vo, 210 pp. Price, \$1.50.

The English reading part of the profession is to be congratulated upon the publication of the works of this remarkable author, in its own language, and the addition of this thoroughgoing treatise upon a very important subject to his series of monographs, will no doubt be most welcome. Those members of the profession who are not satisfied with the old-fashioned routine treatment of diabetes will be delighted with this little volume, and should certainly obtain it. Prof. Von Noorden's monographs show that the chasm between pathology and clinical medicine, between the workers in the laboratory and those at the bedside, is being bridged, in the interest of scientific practice.

International Clinics.—Edited by A. O. J. Kelly, A.M., M.D., and published quarterly by J. B. Lippincott Company. Volume III, fifteenth series, 1905, has been received.

The first article in this volume is on "The Therapeutic Uses of the Röntgen Rays," by George C. Johnston, M.D., and is a thorough exposition of the subject from the view of the clinician. The illustrations, which show conditions before and after treatment, are most practical and satisfactory, and cannot fail to interest any who desire information along this line. This article alone is worth the two dollars which is charged for the book. The other articles, of which there are many, upon a variety of subjects, are not only instructive but eminently useful, so that we confidently commend the work to our readers, as one they will be glad to possess.

Neurotic Disorders of Childhood, including a Study of Auto and Intestinal Intoxications, Chronic Anæmia, Fever, Eclampsia, Epilepsy, Migraine, Chorea, Hysteria, Asthma, etc. By B. K. Rachford, M.D., Professor of Diseases of Children, Medical College of Ohio, etc. New York: E. B. Treat & Company. 1905. Pp. 440, octavo. Price, \$2.75.

This book is founded upon a series of papers published in the "Archives of Pediatrics," in which the physiological peculiarities of the immature nervous systems of infants and children were studied. The author has attempted a careful study of the many neurotic disorders of childhood, and has endeavored to so present the etiology, symptomatology, and treatment of these diseases that the student of medicine and the general practitioner will not only be able to better comprehend the subject but will also be able to improve his lines of treatment. The book is well written, and is worthy of a place.

Surgical Aspects of Digestive Disorders.—By James G. Mumford, M.D., Visiting Surgeon to the Massachusetts General Hospital, and Instructor in Surgery in the Harvard Medical School in association with Arthur K. Stone, M.D., Physician to Out-patients, Massachusetts General Hospital, and assistant in the Theory and Practice of Physic in the Harvard Medical School. New York: The Macmillan Company. 1905. Pp. 395, octavo. Price, \$2.50.

There has been associated in the authorship of this up-to-date volume, a surgeon and an internist, with a view of arriving at certain broad and justifiable conclusions of the subject, so far as possible, as regards the abdominal digestive organs only.

A consideration of the individual organs concerned and of their diseases has been taken up, bearing in mind always the close anatomical relationship of such organs with each other, and the frequent interdependence of their diseases the one upon the other.

The text is scholarly written, in the interest of more careful diagnosis, and for the benefit of the general practitioner.

A Text-book of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson College of Philadelphia, Physician to the Jefferson Hospital, etc. New (11th) edition, enlarged and thoroughly revised to accord with the eighth decennial revision of the U. S. Pharmacopœia,

1905. In one octavo of 910 pages, with 113 engravings and four colored plates. Cloth, \$4.00, net; leather, \$5.00, net; half morocco, \$5.50, net. Philadelphia and New York: Lea Brothers & Co. 1905. A book which has reached its 11th edition, has certainly manifested its right to exist.

Its author has shown the faculty of intuitively discriminating between the important and the unimportant, between the practical and the unpractical, and the profession has shown its appreciation of this gift, by its demand for his book.

In the new edition the text has been revised to accord with the new U. S. Pharmacopœia, and the work is still maintained as fully abreast of the times.

The volume is divided into two main sections, the first dealing with drugs, remedial measures and foods for the sick, and the second with applied therapeutics, or the use of drugs in the treatment of disease. Each section is arranged alphabetically to facilitate reference, and the two are closely cross-referenced, so that complete information on any point is easily found. There are two indexes, one of Drugs and the other of Diseases and Remedies. The latter is annotated, and thus affords at a glance a suggestive list for selection of the most appropriate agent according to the indications of the case. The work answers the needs of student and practitioner excellently.

The Principles and Practice of Medicine: Designed for the Use of Practitioners and Students of Medicine. By William Osler, M.D., Regius Professor of Medicine, Oxford University; Honorary Professor of Medicine, Johns Hopkins University, Baltimore; Formerly Professor of the Institutes of Medicine, McGill University, Montreal, and Professor of Clinical Medicine in the University of Pennsylvania. Sixth Edition, thoroughly revised from new plates. New York and London: D. Appleton & Company. 1905. Pp. 1143, octavo.

The sixth edition of this well-known and popular work appears with so many changes that it may almost be considered a new book.

While the amount of reading matter has been much increased, the use of new type and a larger page, have enabled the publishers to keep the bulk within the limits of a single compact volume.

The work is a reflex of current knowledge in the symptomatology and treatment of disease, based upon the literature and upon the author's experience, at the medical clinic of the Johns Hopkins Hospital.

Dr. Osler's work is so favorably looked upon by the profession, that it is not necessary in this notice to more than announce the publication of a new edition.

The Diagnostics of Internal Medicine: A clinical treatise upon the recognized principles of medical diagnosis, prepared for the use of students and practitioners of medicine. By Glentworth Reeve Butler, Sc.D., M.D., Chief of the Second Medical Division, Methodist Episcopal Hospital; Attending Physician to the Brooklyn Hospital; Consulting Physician to the Bushwick Central Hospital; Fellows of the New York Academy of Medicine, etc. With five colored plates and two hundred and eighty-eight illustrations and charts in the text. Second revised edition. New York and London: D. Appleton & Company. 1905. Pp. 1168, octavo. Price, \$6.00.

This is the second edition of a book which has been well received by the profession, because of its concise,

practical character, and the excellence of its illustrations. The present edition contains one hundred more pages than the previous one, and over forty additional illustrations. Many articles have been rewritten, and a section upon diseases of the mind, added. The publishers state that more than fifty thousand copies of the first edition were printed, showing a large demand. The work is heartily commended.

The Eye, Its Refractions and Diseases.—Diseases of and operations upon the eyeball and its adnexa. By Edward E. Gibbons, M.D., Assistant Surgeon of the Presbyterian Eye, Ear and Throat Hospital; Demonstrator and Chief of Clinic of Eye and Ear Diseases in the University of Maryland, Baltimore. Volume II. New York: The Macmillan Company. 1905. Pp. 632, octavo. Price, \$5.00.

This volume presents a systematic study of the diseases to which it refers, in a concise manner, for the use of students and practitioners. There is a comprehensive chapter upon the eye symptoms in systemic diseases, which will be found of practical use. The subject of treatment is confined to agents of known value. The book will be found up-to-date, and well illustrated by cuts made from drawings of the author.

A Text-book of Physiology: for Medical Students and Physicians. By William H. Howell, Ph.D., LL.D., Professor of Physiology, Johns Hopkins University, Baltimore. Octavo volume of 905 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Company. 1905. Cloth, \$4.00, net; half morocco, \$5.00, net.

The author's many years of experience as a teacher of physiology in several of the leading medical schools is evident throughout the entire work in the simple and clear style and in the practical handling of his subject. He has laid main emphasis upon those facts and views which will be directly helpful in the study of general pathology and in the practical branches of medicine. At the same time, however, we are gratified to see that the experimental side of the subject has not been ignored. This we consider very important, for it has been through individual research that all the great advances in physiologic knowledge have been made. The entire literature of physiology has been thoroughly digested, and the important views and conclusions incorporated. Indeed, the author has prepared a text-book which, while preserving the scientific spirit, is at the same time simple and modern in presentation. Every notable advance in physics or chemistry as influencing physiology has been carefully noted. Illustrations have been freely used, greatly helping in understanding and supplementing the descriptions in the text. Especially valuable are those illustrations employed to make clear the more intricate anatomic and physiologic mechanisms. Altogether, we consider it a very valuable book, because it is accurate, up-to-date, and highly practical.

A Treatise on Diseases of the Skin.—For the Use of advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Ph.D., Professor of Dermatology, Jefferson Medical College, Philadelphia; and Clinical Professor of Dermatology, Woman's Medical College, Philadelphia. Fourth Edition, Revised. Handsome octavo of 1135 pages, with 258 text-illustrations, and 32 full-page lithographic and half-tone plates. Philadelphia and London: W. B. Saunders & Company. 1905. Cloth, \$6.00, net; sheep or half morocco, \$7.00, net.

The four large editions of Prof. Stelwagon's work in three years, bespeaks a book of unusual merit. Notwithstanding the frequency of editions, Dr. Stelwagon has not lost this opportunity to bring his book up to the latest knowledge. The therapeutic use of Röntgen rays, high-frequency current, and Finsen light have been accorded the increased attention their growing importance deserves. We notice the addition of new text-cuts, some thirty-eight in number, and six additional insert plates, all up to the high standard set by the text. The author, by the judicious elimination of redundant material, has kept the size of his book much as before, the increase being only some twenty pages. Indeed, it is remarkable the epigrammatic way that Dr. Stelwagon has of saying things—a style most desirable both in a text-book and a reference work for the busy practitioner.

Anatomy and Physiology for Nurses.—By LeRoy Lewis, M.D., Surgeon to and Lecturer on Anatomy and Physiology for Nurses at the Lewis Hospital, Bay City, Michigan. 12mo of 312 pages, with 100 illustrations. Philadelphia and London: W. B. Saunders & Company. 1905. Cloth, \$1.75, net.

The author has based the plan and scope of his excellent little work for nurses on the methods he employs in teaching these subjects. His object was so to deal with anatomy and physiology that the student, while grasping the primary principles, would at the same time, lay a broad foundation for a wider study. The text, therefore, is simple and comprehensive. It would not be just if in giving our unstinted praise to this work we neglected to mention the illustrations. Evidently, Dr. Lewis is thoroughly familiar with the needs of the trained nurse along these lines. Every illustration selected, and a number of them are in colors, has been chosen for a definite purpose, which it admirably fulfills. For a work of its size it contains an immense amount of information, and just the kind desired, presented in the right way.

Memorandum on Poisons.—By Thomas Hawkes Tanner, M.D., F.L.S. Tenth revised edition. By Henry Leffmann, A.M., M.D., Professor of Chemistry in the Woman's Medical College of Pennsylvania, etc. Philadelphia: P. Blakiston's Son & Co. 1905. Pp. 177, 16mo.

It is always a pleasure to welcome a new edition of this old and popular standard manual, intended for those engaged in actual practice. No physician should be without a copy.

Manual of Pathology, including Bacteriology, the Technic of Postmortems, and Methods of Pathologic Research. By W. M. Late Coplin, M.D., Professor of Pathology and Bacteriology, Jefferson Medical College, Philadelphia; Pathologist to Jefferson Medical College Hospital and to the Philadelphia Hospital; Director of the Clinical Laboratories of the Jefferson Medical College Hospital; Pathologist to the Friends' Asylum for the Insane, Frankford. Fourth Edition, rewritten and enlarged. With four hundred and ninety-five illustrations, many of which are original, and ten colored plates. Philadelphia: P. Blakiston's Son & Co. 1905. Pp. 994, octavo. Price, \$4.00.

The fourth edition of this valuable book—which has practically been out of print for some time—appears revised, rewritten and re-arranged, to meet the demands of time. We wish to call attention to the fullness of the illustrations, which are so important in a work of this

kind. By skilful management of the publisher, the bulk has been decreased in the interest of a more presentable volume. The book is, as its title indicates, a useful manual in the laboratory and postmortem room, and in clinical diagnosis by the aid of the microscope. The work is unhesitatingly commended.

The Principles of Bacteriology: A Practical Manual for Students and Physicians. By A. C. Abbott, M.D., Professor of Hygiene and Bacteriology, and Director of the Laboratory of Hygiene, University of Pennsylvania. Seventh Edition. Enlarged and thoroughly revised. With 100 illustrations, of which 24 are colored. Philadelphia and New York: Lea Brothers & Co. 1905. Pp. 689, octavo.

This practical and useful manual reaches us in its seventh edition, evidently a fixture. An effort has been made to present in this edition, some idea of the biological bearing of the important subjects of Infection and Immunity. There is also included the practical results, often of so much importance to preventive medicine, which adds materially to the value of the book. The section on Methods has been brought fully up to date, and is confined to those procedures which have been found trustworthy. This book stands in the front rank.

A Manual of Diseases of the Nose and Throat.

By Cornelius Godfrey Coakley, A.M., M.D., Professor of Laryngology in the University and Bellevue Hospital Medical College, New York; Laryngologist to Columbus Hospital, the University and Bellevue Hospital Medical College Clinic, etc. Third edition, revised and enlarged. Illustrated with 118 engravings and five colored plates. New York and Philadelphia: Lea Brothers & Co. 1905. Pp. 594, octavo.

This excellent manual has been revised, some parts rewritten, and many new cuts added, to make it conform to the advances in diagnosis and treatment up to the present time. It is well suited to both students and practitioners. A special chapter has been added, devoted to therapeutics, wherein will be found a classification of drugs, according to their local actions, and a number of useful prescriptions, together with indications for their employment.

Text-book of Anatomy.—Edited by D. J. Cunningham, F.R.S., M.D., (Edin. et Dubl.), D.Sc., LL.D., (Glasg. et St. And.), D.C.L. (Oxon.), Professor of Anatomy, University of Edinburgh. Second and thoroughly revised edition. Illustrated with 936 wood engravings from original drawings, many printed in colors. New York: William Wood and Company. 1905. Pp. 1388, large octavo.

This superb standard text-book has been carefully revised, and a large number of new illustrations have been added. The sections in which the chief changes and additions have been made are those upon Embryology, the Joints, the Muscles, the Brain and Spinal Cord, the Genito-Urinary Organs, the Lymphatics and Applied Anatomy. The bulk of the book remains about the same by careful pruning.

The fact that this work has been done by ten eminent Anatomists, who are specialists in their respective parts, and that the text is profusely illustrated with original drawings, is sufficient evidence as to its character, and places it in the very front rank without a doubt. Our commendation is unqualified.

A Treatise on the Nervous Diseases of Children for Physicians and Students.—By B. Sachs, M.D., Alienist and Neurologist to Bellevue Hospital; Neurolo-

gist to the Mt. Sinai Hospital, Consulting Physician to Manhattan State Hospital; Formerly Professor of Mental and Nervous Diseases in the New York Polytechnic, etc. Second Edition, revised. New York: William Wood & Company. 1905. Pp. 571, octavo.

The author of this work has reason to be proud of the fact that his book should already have been translated into several foreign languages.

In this edition Dr. Sachs has reduced the bulk without lessening its value as a special treatise on the subject announced. He has omitted the chapters on Anatomy and Physiology, all detailed histories of cases, and all bibliographies.

Every chapter has been carefully revised and much new matter has been introduced. The book stands very high in its specialty.

A Manual of Diseases of Infants and Children.

By John Ruhrah, M.D., Clinical Professor of Diseases of Children, College of Physicians and Surgeons, Baltimore. 12mo volume of 404 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Company. 1905. Flexible leather, \$2.00, net.

The author is to be congratulated upon the production of a manual that presents the subject of pediatrics in such a clear yet concise manner. He has outlined the therapeutics of infancy and childhood in a way that cannot fail to make for this work a place of first importance in its field. He has given explicit instructions for dosage and prescribing, and a number of useful prescriptions are appended. Infant feeding is given in detail. All the illustrations are practical, and include three inserts. A very valuable feature consists in the many references to pediatric literature so selected as to be easily accessible by the student, enabling him to ascertain the sum of knowledge on any given disease. The work is highly commended.

Anal fistula is treated as follows by Hill (*Boston Med. and Surg. Jour.*): In uncomplicated cases, of short duration, with shallow ulcer and sphincters not yet hypertrophied and spasmodic, palliative measures will often affect a cure. Bowels are regulated by careful attention to diet, with perhaps nightly injections of olive oil (one ounce), to be retained till morning. Strictest cleanliness should be maintained by night and morning bathing with hot water; this should also be done after each defecation, after which the parts should be dried and a pad of sterilized gauze held over the parts by means of a T bandage. The routine use of nitrate of silver solutions may disappoint. It acts by destroying the unhealthy granulations and the exposed nerve endings, as well as affording a protective by the formation of an albuminate of silver. Hill rather prefers pure ichthyol applied to the fissure with a cotton swab several times a week. This allays painful symptoms; and a few applications usually suffice. Any application should be preceded by cocaineization or by anæsthesin insufflation. Patients on discharge should be warned against constipation, and to keep the parts clean. Operation is indicated in all complicated cases, and such as do not readily respond to palliative treatment. The sphincter is stretched under general anæsthesia; or there is complete or partial division of the external sphincter. The latter may be done under local anæsthesia. All cases are not cured by sphincter stretching or partial division; but "a single complete division of the external sphincter will cure any fissure, single or multiple, whatever its location."

THE CO-OPERATION IN CLINICAL PATHOLOGY.

To the Editor of the MEDICAL TIMES:

Co-operation is one of the most attractive of all ideas that have come to the mind of students of political economy. It is an idea so obviously suggested by many circumstances to all those who are dependent upon others for services or supplies that it is hard to trace the beginning of the idea. However, like many other apparently simple problems its application in a pure form has never been solved. The reason for this is, that those who have elaborated the purer systems of co-operation have left out what ex-President Cleveland, in speaking of life insurance affairs a few days ago, called "the legitimate self-interest." All the trusts, syndicates, and other combinations are developments of co-operation. These have often overstepped the bounds of legitimate self-interest.

Very early in life I came in contact with enthusiastic advocates of co-operation as a means of elevating the working classes, as represented by the more poorly paid mill employees. After years of disinterested toil the movement was a failure, as it was bound to be from the beginning. So in approaching the enterprise of bringing co-operation to bear upon the application of the resources of clinical pathology to the daily work of a large number of physicians, I am not deluded by any of the theoretic beauties of co-operation, but on the other hand, am imbued with a distinct appreciation of its limitations. Some time ago I decided to start a co-operative laboratory by obtaining the assistance of younger men with good technical training and experience, giving them such pecuniary remuneration as the enterprise would justify. This, with the experience and training gained, would supply a sufficient contribution to their legitimate self-interest. On my part the legitimate self-interest was to be satisfied by the free application of clinical pathology to work with my own patients and my own clinical work, by supplying me with a broader field for study and experiment, and by the natural prestige which goes with the control of a respectable laboratory. The laboratory that was started is co-operative in the sense that no attempt is made to make it successful from a purely commercial point of view. Everyone working for it is to be compensated in one way or another up to the limit of its resources, and everyone enjoying the privileges of the laboratory will contribute towards its support and be given every possible advantage. To these ends a laboratory of clinical observation was organized last October, and a number of physicians were invited to become subscribers, paying ten dollars a month, and the laboratory agreeing to do all their clinical pathology. At the same time work was done for men who did not subscribe, who were charged the usual average fees. During the months that are past much has been learned of a practical nature bearing upon co-operation in clinical pathology. Anyone who had given the subject less thought than myself would have often been discouraged, and have, perhaps, abandoned the co-operative idea. On the contrary, it seems to me at the present time that the outlook for a successful co-operative laboratory is better than ever, because, though the number of men who appreciate the enterprise is not great, nevertheless, with these it has been tried out, and it is hoped that in the future many of the large number of physicians who have become familiar with the idea of mutual help, will finally accept the co-operative idea in its purer form.

The point of the whole matter is that technical labora-

tory work has never been generally applied in private practice, and but seldom in the hospital work. The idea of examining a series of specimen from each case whether presenting distinct evidences of disease or not, has not often occurred to the medical practitioner as possible or necessary. The pathologist, after a long time, during which he has been required to give an opinion from a single specimen, has learned to suppress many minor details which, unless interpreted in the light of more frequent observation, would be misleading, so that more often than not, the patron of a laboratory sending only an occasional specimen will either receive a colorless report, or else an opinion founded upon insufficient data that may be entirely misleading. A very faint trace of albumen in the urine may be accounted for in so many different ways, that when very slight and unaccompanied by other evidences of disease, it is often better not reported in the single examination. The same is true of a very few casts when obtained by the electric centrifuge. If it is the office of the laboratory to act simply as an observer of facts, and this is our attitude, it must report facts, and trust to repeated observations to enable the physician to draw his conclusions. It is certainly not in the interest of truth that the laboratory should supply the physician only with such data as those from which he will be apt to draw probably correct conclusions. Dr. Richard C. Cabot, of Boston, has written some very interesting articles upon the relation of urinary findings to the diseases of the kidneys. It must be acknowledged that at the present time clinical pathology does not help the average practitioner of medicine to any marked degree. There are, of course, a few bright exceptions, as in the diagnosis of typhoid fever, diphtheria, etc., but these diseases do not make up a very large part of a physician's work. Most of this work is in the care of patients in whom the problem is the modification of slow processes which constitute rather errors of physiology than definite disease. Such are neurasthenia, gout, rheumatism, malnutrition as represented by the over or under production of fat. Then there are the chronic infections to be studied, nor must the determination of the personal equation of hæmoglobin, etc., in each patient be overlooked. How valuable it would be if each individual could have for the use of his physician, or whatever physician he might consult, such facts as his hæmoglobin percentage, the habits of his kidneys, as to the occasional production of albumen, etc., and perhaps his bacteriological flora. There are people who always have diphtheria germs in their throat, and there are other apparently healthy persons who have tubercle bacilli occasionally present in the sputum. How much light could be thrown upon a case if we could know the standard of the individual. The arbitrary standards that have been in use so many years are unquestionably at fault when used in the light of the greater accuracy of modern observation. We are in a state of confusion because of the rapid progress of technical affairs. The only way to keep up with this progress is, by keeping constantly in touch with the technical side of medicine. This is impossible for the average individual acting alone. Co-operation by concentrating the work of a good many men will make possibly a sufficient number of technical workers, so that each subscriber to the work may have free use of laboratory resources in his professional work.

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RETROSPECTIVE THERAPEUTICS

Aneurism and arteriosclerosis are considered by C. N. B. Carnac: Arterial disease appears to be rare, almost unknown in animals. Syphilis being probably peculiar to man is thus placed logically in the list of causative factors. Arterial disease in children under six, even in those who are victims of congenital syphilis, is practically unknown; from six to fifteen it is rare. It is found in the initial stage most commonly between the thirtieth and fortieth years. The teratological factor, though not determined, is probably of great importance. Arterial disease seems to be attributable to syphilis in about 32 per cent., to tuberculosis in about 16 per cent. The colored race seems to be affected about four times more frequently than the white. General arteriosclerosis seems to be most commonly found with aneurism, and its presence may be considered as evidence against the probable development of aneurism. Staining with selective stains and treating with a chemical which digests tissue shows the elastic tissue to be free of histological alteration, suggesting that this tissue undergoes physical or molecular rather than histological change.

The "neurotic heart" is discussed by Beverly Robinson (*Am. Jour. Med. Sci.*, June, 1905), who emphasizes the following points: An apparent or evident slight cardiac enlargement with or without dilatation, and it may be slight hypertrophy, occasioned by or preceding directly from a cardiac neurosis. (2) A condition of secondary anemia, as shown by careful microscopic blood examination, with count and differentiation of white corpuscles, which remains stationary for a very long while, despite the use of iron preparations and other rational treatment. (3) The absolute or relative uselessness of digitalis, notably unless the heart muscle is involved; even in these instances, strophanthus is more useful for acute manifestations of weakness or failure. (4) Impaired nutrition, at a given period, of the muscular walls of the heart, under the immediate dependence, probably of diminished nervous energy, occasions slight cardiac dilatation at times, which subsequently, under judicious treatment, remains stationary as to amount, and becomes functionally compensated.

Various Uses of the X-Ray.—That this valuable diagnostic agency has other uses than for the detection of lesions upon which rational treatment can be based, is evidenced by several incidents which have come to our notice. There is that of a colleague who was consulted by a visitor unknown to him, who wanted to be examined concerning his stomach and liver. The physician was not at all certain his fee would be forthcoming. He directed the apparatus upon the patient's frame and, as a result, informed the latter that his stomach was dilated and his liver of the hob-nailed variety. And now, continued the astute physician, who was taking no chances, "If you will turn over to me that five-dollar gold piece which I see in your vest pocket, I will write you a prescription." Again, we are informed (we do not vouch for the statement) that X-ray work has been found serviceable in the Law, that breach-of-promise suits have been decided in favor of plaintiff by the admission in evidence of X-ray photographs of the broken heart.

Our much valued cotemporary, the *New York Medical Journal*, reports that a negro having formed a pass-

ing attachment for a diamond ring to which he could offer no legitimate claim, upon being surprised "with the goods on," swallowed the ring, notwithstanding the heavy setting that surrounded the stone. To prove the fact of this sequestration, the jailer, in whose care the culprit had been confined, sent promptly for the municipal electrical apparatus. The negro, imagining this to be the method of electrocution employed, promptly confessed. The skiagraph, however, was taken, and revealed the position of the ring.

Health in the Canal Zone.—The report of the Department of Health of the Isthmian Canal Commission for the month of July, of this year, calls attention to the small amount of sickness among the employees of the Commission during that period. It appears to us but just to set forth definite statements from this report, in view of some recent adverse criticism of this department. There was absolute freedom from quarantinable diseases, except yellow fever; neither small-pox nor plague. During the month there were thirty-two cases of yellow fever—a most encouraging decrease from that of the preceding month, when there were sixty-one. Of the thirty-two cases referred to, only twenty-one occurred among over 10,500 employees, of whom more than 1,500 were non-immune. In our total population on the Zone (including Colon and Panama), of some fifty thousand inhabitants, there were thus but thirty-two cases. The criticism referred to declares that in the Canal Zone there were at this time as many deaths from yellow fever as at any time under the French. There were, in fact, but five deaths from yellow fever in the city of Panama during July. The French work collapsed in 1888, and the first July of which there is record was 1884. Taking the Julys of these five years, there were an average number of yellow fever deaths of twenty-eight; minimum ten; maximum fifty-one. There were therefore during July of the present year just one-half of the smallest number under the French; one-tenth of the largest; one-fifth of the average.

The sick in hospitals of all diseases averaged 291—a constant sick rate of 27 per 1,000. There was an absence of plague in July. But one case originated on the Zone in June. As this man had been on the Zone some three months, it is evident the Zone itself was infected, and that the disease was here indigenous. However, as six weeks elapsed since the occurrence of this case, it is likely that through the able and truly heroic work of Dr. Gorgas, and his assistants, this disease has been eradicated. The report we have received bears evidence of satisfactory sanitary conditions on the Isthmus, and is a well-deserved tribute to this splendid gentleman and his staff.

The use and abuse of the uterine curette are dwelt upon by McReynolds (*Am. Jour. Obst.*, June, 1905), who, while generally using the sharp curette, finds occasional use for the large dull instrument. Hyperplastic, chronic or polypoid endometritis, subinvolution, and puerperal conditions caused by the retention of some of the products of conception, yield promptly as a rule, upon thorough and careful curettement, unless there is already present disease of the adnexa or a general septic infection. It is scarcely ever necessary to leave a gauze packing in the uterine cavity; when this is done the gauze is to be removed in twelve hours. In malignant growths not permitting a radical operation a careful curettement and a free use of the

cautery, followed by chlorid of zinc, has yielded "surprisingly good results"; the pain, foul discharge and hemorrhage are relieved and life is materially lengthened and made more comfortable. Curettement for diagnostic purposes is not entirely satisfactory. In septic conditions, when the infection has passed through the endometrium into the muscle of the uterus, to the tube or to the cellular tissue around the uterus, or has been carried by the lymph vessels through the ovaries or elsewhere over the body, no appreciable good comes from curetting, except to establish the diagnosis and to prove that the uterine cavity is free from all septic material. Curettement is unavailing in endometritis accompanying submucous fibroids. "Anything but satisfactory results" have been obtained by curettement for gonorrheal endometritis. McReynolds advises radical operation for chronic endometritis; he has here had no benefit from the curette. In dysmenorrhœa from pathological collections, the results from a dilatation and curettement are good. Major operations on the adnexa should be preceded by curettement of the uterus unless there is some contraindication. Bovée (*Virginia Med. Semi-monthly*, June 9, 1905) states that as the result of an extensive experience he has developed the curette touch. The dull variety is to be used to remove shreds of tissue after abortions or miscarriage; the sharp, serrated instrument to remove intra-uterine growths; the plain sharp curette in all forms of endometritis not associated with malignant disease that does not spring from the mucosa, such as carcinoma of the body, pedunculated submucous fibroids, mucous polypi, subinvolution, metritis, chronic passive uterine congestion. The dull serrated curette is useful in practically all the conditions for which the plain, dull curette is used. These conditions, considers Bovée, are practically all in which curettage is applicable. Curettement in the office and sending the patient home afterwards is "malpractice"; for the technic of such a procedure must be very faulty and the danger of infection greatly enhanced.

Cushion diseases, states J. D. Potts (*Med. Rec.*), result from modern chairs padded with hair or wool, and covered with impervious material, so that the tubera ischii no longer perform the function for which they were provided. The warmth of the perineal structures in contact with the cushions is increased, and the function of the sudorific follicles and sebaceous glands is stimulated to greater activity. The inability of the secretions to escape by friction or evaporation must sooner or later result in maceration and exfoliation of the epithelial layer. This layer is the protective one; so that infection by some one of the ever-present pathogenic bacteria will result as soon as its integrity is broken. Depletion of the blood vessels of the parts while under pressure must be followed by more or less congestion. Deranged nutrition ensues, and the foundation of many disease processes is laid in the injured parts. Potts has observed three classes of diseases in which he regards the soft cushion as the causative factor: The first has its seat in the integument, or beneath the skin of the perineal region, and embraces eczema, intertrigo, erythema simplex, pruritus ani and both skin and subcutaneous abscesses. The second class has its seat in the mucous and submucous tissues, and embraces such disorders as simple urethritis, simple proctitis, anal ulcers, etc. The third class has its origin in the blood vessels and glands, and includes such

diseases as hemorrhoids, papillomata, adenomata, etc. Prophylaxis consists in the return to the old-fashioned hard-bottomed seat, or one so firmly cushioned that the tuberosities cannot sink into it.

Ergot in Midwifery is discussed by Hopper (*Antal. Med. Gaz.*, Feb. 20, 1905), who believes that post-partum hemorrhage, unless due to trauma or some blood dyscrasia, can best be met by methods which have superseded the use of ergot. In secondary hemorrhage, due to separation of thrombi in the uterine vessels, and not associated with malignant deciduoma, Hopper believes both ergot and strychnine hypodermically to be necessary. For post-hemorrhagic shock ergot is not indicated, reliance being placed on increasing the fluid in the blood vessels by transfusion of normal sterilized salt solutions, and heart stimulation by alcohol and strychnine. Uterine inertia requires, not ergot, but induction of sound sleep after delivery. Here the bladder and rectum must be emptied, and forceps applied early, so as to lessen the risk of hemorrhage in and after the third stage. Among ergot preparations the author relies upon citrate of ergotine, gr. 1/30; standard solution of the fluid extract; or Tanret's Ergotinine, in sealed bottles, dose 5-10 minims, given by injection into the muscles. Ergot should not be administered until the source of the hemorrhage is accurately ascertained; there may be torn vessels in the cervix, the clitoris, the vagina and the perineum. In renal inadequacy, or where there is a diminished output of urea or albuminuria, ergot is contraindicated. This drug cannot be entirely abandoned in the puerperium; but occasions for its use should be limited. By care and foresight, by not allowing the second stage to be unduly prolonged, hemorrhage may often be obviated. And oftentimes, on its occurrence, when the uterus is emptied of placenta or membranes, hot water irrigations, with firm pressure upon the fundus from without, may suffice, with perhaps an injection of ergot into the glutei.

We would observe further that the emptying of the bladder and rectum before labor are absolute essentials to good midwifery. Ergot must not in any event be employed until we are sure the uterus is emptied of all detritus. The preparation called Ergotol is excellent and of standard quality.

Cessation of Epilepsy after Removal of Adenoids.

—St. Clair Thompson reports a case (*Practitioner*): A child of six had for two years been subject to fits. She had a marked adenoid facies; was deaf, so that whispered speech was heard only at a distance of two yards; the membrane tympani were very translucent, only slightly retracted, the pink injection of the inner tympanic wall shining and easily visible through the drum membrane. This appearance of the drum is very characteristic of Eustachian and middle-ear catarrh from adenoids. In the case reported these growths were found upon digital examination to be plentiful; and a large mass of them were removed. There were no palatine tonsils present. Within two weeks the patient had ceased to be a mouth-breather. The membrane no longer looked pink, and the child heard a whisper at four yards. She was much brighter and slept quietly; but the fits continued. Thompson did not again hear of the child until four years after, when the parents reported that the fits had ceased within a few months of the operation. Her weight is now sixteen pounds above the average; she is without trace of

adenoids; her hearing is perfect; there is no marked arching of the hard palate. Now nearly thirteen years of age she has had no fits for seven years. Thompson does not claim that she is permanently exempt from recurrence, since relapse is said to occur after the lapse of nine years, especially at the onset of puberty. Still the relief seems fairly attributable to operation, which has moreover wrought a decided improvement in the child's appearance, and in her general physical and mental well-being.

Conditions determining variations in the energy of tumor growths are considered by Loeb (*Amer. Med.*, Aug. 12, 1905), who finds that the rate of tumor growth is influenced not only by the species into which the tumor is transplanted, but also by variations which exist among individuals or families of the same species. Under certain conditions a state of active immunity can be experimentally produced—more easily with some tumors than with others. The energy of tumor growth can be increased through successive transplantations up to a certain maximum. An experimental decrease in the energy of tumor growth can also be caused. These variations are caused by a direct stimulating or depressing effect upon the tumor cells. Such growth is primarily due to an increased energy of growth of those cells from which the tumor takes its origin; it cannot be due to a lowered resistance of the organism in which the cells carry on their apparently unlimited growth. If a tumor cannot be successfully inoculated into other animals, it is probably not due to the fact that other animals are more resistant toward the growth of inoculated tumor cells than the animal in which the tumor growth developed originally, but to other causes still unknown.

Flint's murmur disappears, states J. Thornayer (*Centralbl. f. innere Med.*, No. 37), when the left ventricle dilatation disappears; consequently it is due to a stretching of the wall of that cavity. Since the fibrous ring at the auriculo-ventricular orifice does not stretch with the left ventricle muscle, or to the same extent, a relative stenosis is produced and a presystolic thrill and murmur arise. In high degrees of dilatation of the left ventricle the ring may be stretched and the valve leaflet fail to close the orifice completely, so that a systolic murmur is produced. This symptom is observed in aortic regurgitation.

Digitalis in valvular heart disease increases the contractions and lengthens the diastole; the nutrition of the muscle is at the same time improved, more blood being forced into the coronary arteries (Coepp, *Am. Med.*, Sept. 23, 1905). This drug finds its indication in the dynamic state of the circulation, the precise nature of the cardiac lesion being of minor importance. It may be used in any form of valvular disease, and is not contraindicated even in aortic insufficiency. It is distinctly contraindicated in hypertrophy with established compensation, degeneration of the myocardium and high arterial tension. Its cumulative action may be disregarded, and its administration kept up for a considerable period. (One should not here be reckless, however.) The best preparation is the fresh infusion made from the powdered leaves; not, as is sometimes the case, by diluting the fluid extract.

Digitalin, a useful preparation, can be given hypodermically—in larger doses than is usually recommended—beginning with gr. 1/30 and increasing to gr. 1/12.

Stiff and contracted joints are treated by Klapp and Bier (*Munch. Medizin. Wochenschr.*, No. 17, 1905) by means of rarified air. The limb to be acted on is enclosed in a metal box, and the joint is brought opposite an opening in it which is closed with a rubber sheet. The whole limb is thus enclosed in an air-tight space, from which the air is exhausted slowly, and to such a degree as is necessary. The rubber sheet is wrapped around the joint, which is thus directly exposed to the external air pressure by means of which a powerful, equally distributed and continuous force is applied. It is claimed that forced movements, brought about in this way, are free from pain, the result being a feeling of freedom in the joint; moreover, by means of the passive hyperæmia induced during the operation, absorption of the inflammatory exudation is stimulated. The knee, ankle, elbow and wrist joints are all capable of being treated in this way and good results have already been obtained. Flexion and extension can easily be arranged.

Laryngeal Tuberculosis and Syphilis.—That the diagnosis of these grave conditions is important to be made early is evidenced by the following case by Landesberg (*Wien. Klin. Rundschau*, July 16, '05): A woman of twenty-five had been for months treated without benefit for laryngeal tuberculosis ulcers—until severe dyspnoea set in, and an exceptionally severe attack made tracheotomy necessary. Shortly after this she came under Landesberg's care, who found large crater-like ulcers on the false cords and arytenoids, with no pallor at any part, but a dull red color over all the larynx. The patient could swallow only small sips of fluid, and not even this without much pain and difficulty. The vocal cords were injected and œdematous, and did not meet on adduction. Having satisfied himself he had a case of syphilis to deal with he used injections of succinamide of mercury (20 per cent. strength) with almost immediate relief and uninterrupted recovery. Orthoform could not in this case ease the severe pain; Landesberg recommends perhydrol (Merck) in 30 per cent. strength to be painted on the ulcerated surface.

The value of irrigation in gonorrhœa is discussed by Valentine and Townsend (*Am. Jour. Urology*, Aug., '05), who declare that even the mildest manifestation of the disease is dangerous to the patient, to his wife, to his children, and to the community. It cannot be claimed for the irrigation method that a patient is cured before the permanent absence of the gonococcus is assured. This method is positively dangerous unless employed with judgment, caution, tact and gentleness; under such careful treatment many patients have recovered permanently. The technique is not difficult to acquire, the same scrupulous attention to details is essential here that is demanded by every other remedial measure in any other disease. The choice of medicaments is not limited to potassium permanganate, silver nitrate or mercuric chloride, but is governed both as regards selection and the strength of the solutions, by individual conditions—the character of the discharge and of the urine, the microscopic and cultural results, possible (and probable oftentimes) involvements of the major and minor adnexa. Chronic gonorrhœa is always dependent on infiltration of the urethral mucosa, involvement of the urethral crypts, glands and follicles, or invasion of Cowper's glands, the prostate and seminal vesicles, or all of these structures. Treatment of such

extensions of the disease is necessary in conjunction with irrigations. Complications may be escaped if the patient with acute gonorrhoea comes at once under treatment and if irrigations are employed "cautiously, skillfully, gently and judiciously." No other treatment will relieve pain and reduce discharge as quickly as this method.

The Medical Treatment of Nephritis.—Elliot (*Med. Times*, Sept. 2, '05), holds—and we believe rightly—that this disease is a widespread nutritive disturbance, involving the organism as a whole with the nephritis as but one manifestation. This opinion is not in accord with that of some recent writers, including Von Noorden and his school, who confine their attention strictly to the kidneys. Elliot wisely urges the necessity of careful examination of the patients in all respects, and the correction of any other functional perversion or complication which may be found to exist in order to eliminate sources of systemic toxæmia. It is absolutely necessary here, as with all patients, irrespective of their peculiar maladies, to consider the individual sufferer. Elliot discusses nephritis without dropsy; with dropsy; and uræmia. Such as are without dropsy are chiefly examples of chronic interstitial nephritis during the stage of cardiovascular compensation. One must here protect the kidneys from irritation, especially the strain imposed by intercurrent acute toxæmias; the maintenance of cardiovascular compensation is also essential. The first of these two indications is fulfilled by regulating the diet and personal hygiene; the amount of water drunk must be regulated and compensation must be relieved. The management of cardiovascular compensation becomes essential in the regulation of high blood pressure. These things may be accomplished without recourse to the *materia medica*. However, if there is excessive pulse tension, vasodilator drugs—the nitrites, aconite and the iodides—may be administered. In nephritis without œdema Elliot believes (wisely, we think), that digitalis, cardiac stimulants and diuretics are not only unnecessary but harmful. When dropsy is renal in origin, diuretics have next to no influence. Prolonged rest in the recumbent position, restriction of fluid intake, hypochlorization, diaphoresis, irrigation of the colon, subcutaneous, puncture and paracentesis are indicated. If the dropsy is of cardiac origin, cardiac tonics must be used, with rest and diminished fluids. In the prophylaxis of uræmia Elliot employs purgatives and enteroclysis with alkaline solutions. In anticipating this condition blood pressure observations are important; to relieve high tension venesection and lumbar puncture may have to be employed. Elliot would not be pessimistic with regard to the prognosis of Bright's; he directs attention to nature's wonderful powers of adjustment in damaged organic states, showing that generally assistance only is needed; seldom is interference called for. The two most important indications in the treatment of chronic nephritis are to protect the patient from intercurrent acute toxæmias and to maintain the compensatory adjustment in the circulation.

Ischochymia is treated in two ways (Einhorn, *Am. Med.*, June 3, 1905): By dietetic and medicinal measures; and by operative procedures. In most cases there is a pyloric stenosis; so that the formation of a new passage for the exit of the chyme from the stomach would seem an ideal procedure. Yet surgery should not be recommended for every case, at least not at once;

the mortality of enterostomy and pyloroplasty is rather high—from five to twenty per cent. Benign ischochymia requires medical treatment at first (rectal alimentation, fluid diet, lavage of the stomach, bismuth, etc.; in many apparently grave cases there is recovery in this way; if this be unsuccessful, if after a longer period of treatment the fasting stomach, on a fluid diet, is not empty, but contains food remnants, an operation is advisable. Surgery is also indicated "in benign ischochymia which has developed subsequent to a condition of continuous hypersecretion of gastric juice (preceded by hemorrhage or not)"; and in malignant ischochymia or one of dubious nature in which a thickening of the pylorus is found. Cases of ischochymia with preceding gastro-succorhea are likely to require operation, because they are generally complicated with active ulcerative processes in the pyloric region and may be attended with perforations and severe hemorrhages. The danger from operation in this variety is less than that from possible complications, therefore an operation should be advised.

The preservation of urine may be secured, states J. B. Ogden (*Bost. Med. & Surg. Jour.*, June 22, '05), by the use of various substances. Boric acid is the most practical and perhaps the best preservative; five grains should be used to each four ounces. Tablets of known measure may be used. Urine may thus be preserved for from three days to three weeks, according to the character of the urine and the temperature at which it is kept. A diabetic urine is apt to lose its sugar by fermentation. The addition of boric acid will raise the specific gravity about two points. In collecting twenty-four-hour specimens fifteen grains of boric acid should be deposited to begin with; thus will the urine be preserved for at least twenty-four hours after the total quantity has been collected. One drop of formalin (40% solution of formaldehyde) will preserve a pint of urine for about a week. Other substances than these should not be used.

Muscle angiomas on account of their tendency to become malignant and to recur after removal, require that the entire muscle be excised unless the angioma is distinctly encapsulated. If the growth is very large an entire group of muscles may have to be removed; even the limb may have to be amputated.

Rhinolith occasioning otitis media is reported by H. Halasz (*Pest. Med. Chir. Presse*, Mch. 12, '05). A girl of thirteen had the right side of the nose occluded accompanying which was a smell so foul that the appetite of the patient herself was destroyed. After cocain and adrenalin tamponing, Halasz detected and removed a firm large mass from the middle meatus which proved to be an accretion about a cherry pit. The middle ear suppuration, which had been going on for two months previously, ceased after removal of the stone.

Zomotherapy is declared by Philip and Galbraith to produce not only a gain in weight but also to increase digestive leucocytosis and hemoglobin and to promote constructive metabolism. A raw meat and raw meat-juice dietary appears thus to be distinctly valuable. One should be certain, however, that the meat is not that of tuberculous animals. This consideration is, however, perhaps not so weighty as it might seem; because the musculature of animals is not involved nearly as much as the viscera and other parts of the body.

Cold affusions in delirium tremens are advised by W. Broadbent (*Brit. Med. Jour.*, July 1, 1905). The patient is stripped naked and lies on a blanket over a waterproof sheet. A copious supply of ice-water is provided, and a large bath sponge dripping with it is dashed violently on the face, neck, chest and body as rapidly as possible. There is then dry-rubbing with a rough towel, and the process is repeated a second and third time. The patient is now turned over, and the wet sponge is dashed on the back of his head and down the whole length of the spine two or three times, vigorous friction with a bath towel being employed between the cold water applications. By the time the patient is dried good and comfortable, he will be fast asleep. (Good treatment; but watch for shock.)

In ascitis due to tubercular peritonitis, Schomann (*Centralb. für Chir.*) punctuates the abdomen with a large cannula, and after drawing off all the fluid possible, injects an emulsion of iodoform in glycerin, beginning with 1 to 2 cubic centimetres of a one per cent. emulsion, and slowly increasing the concentration and dose, giving an injection every four to eight days. So far he has treated seven cases by this method with relief of symptoms after three or four injections, and complete cure in from three to ten weeks. (We fear we are skeptical concerning permanent cures after this manner.) However, his method causes no disagreeable symptoms and avoids all the dangers of laparotomy.

Drugs simulating sugar in the urine are enumerated by Colman (*Denver Medical Times*): Acetanilid, arsenous, salicylic, dilute hydrocyanic and sulphuric acids; alcohol, amyl nitrite, chloral; chloroform, copaiba, glycerin, mercury, morphine, strychnine and turpentine. These substances may, when injected, cause the urine to reduce Febling's solution, and respond to some other tests for sugar.

The seventy different and undecomposable elements of our student days are fast giving away, declares Dr. Brudenell Carter, before a belief that both the inanimate universe and all living creatures are alike built up of units of electricity of almost unconceivable minuteness, arranged in varying combinations with an all-pervading ether.

Dr. J. W. Oswald, of Chicago, was stricken with paralysis while operating in the Michael Reese Hospital. The knife dropped suddenly from his hand and attendants assisted him from the room. An assistant completed the operation. Dr. Oswald was not expected to recover.

Oligoposy is the term employed by Labbé to express the disturbances resulting from not drinking enough fluids. It entails oliguria, irritates the kidneys, produces albuminuria and leads to gout. A large glass of any warm infusion, morning and evening, washes out the organism effectually.

The paradise of women physicians is the name given to Holland. In this country, ever-liberal in its tendencies, the medical profession has for twenty-six years been open to women, among whom it contains a very large proportion of practitioners.

In building the foundation of a lunatic asylum at Carshalton, the ruins of a fortified British village were discovered. The pottery found in it indicated its existence half a century B. C.

The arrangement of the collegiate year as an exemplification of the eternal fitness of things, was cited by Dr. James Chrichton-Browne, in a recent ad-

dress to medical students. Whoever first fixed the curriculum to begin in the autumn, builded better than he knew; scientific reasons are now available to attest the wisdom of this policy. Extensive dynamometric experiments have shown that the energy of attention increases steadily from October onward, is abundant till March, and then diminishes, reaching low-water mark in July. A short vacation following March, a long one preceding October, are the resting periods prescribed by experimental physiology.

The culinary art is an aid to health, declares the *Medical Record*, which cites the researches of a Russian physiologist on digestion to the effect that the ingestion of substances, with a purely nutriment value does not sufficiently satisfy the demands of the body. Taste and appetite must also be considered. These are satisfied only by the addition of spices and salt to the food; and it is largely due to the influence of these condiments that the proper amount of gastric juice is liberated. The action upon the stomach of reflex stimuli is shown by the favorable effect on the flow of the gastric secretions made by mental impressions as a result of the mere sight and odor of a well prepared dish. Epplen maintains, indeed, that the proper preparation of all food, as demanded by the essential requirements of the culinary art, is not a luxury but a physiological necessity, and to develop and disseminate this knowledge is an act beneficial to the public welfare.

A cancer "cure" sold in England for one pound a bottle proved to contain material of no therapeutic value, worth at most two pence.

The International Medical Congress at Lisbon will be attended by a large American party, among whom will be Drs. L. S. MacMurtry, Nicholas Senn, J. D. Griffith, A. T. Corlett, W. F. Southard, F. P. Norbury, C. H. Hughes, R. T. Morris, A. Vander Veer, J. M. Matthews, J. B. Murphy, F. B. Turck, and J. E. Moore. Dr. J. H. Musser is chairman of the National American Committee, and Dr. Roman Guiteras (75 W. 55th street, New York City) is the secretary, to whom all applications for membership and communications in regard to the presentation of papers should be addressed. The party will sail on April 7 for Gibraltar, and will return to New York on May 9. The trip will be made comfortably in a first-class steamer both ways, all expenses, including board and room while in Lisbon, and entertainment at other points, being \$300. A number of side trips are being added, and ticket will be good returning through Europe at a slightly increased cost. All contemplating the trip should write early to Dr. Chas. Wood Fasset, of St. Joseph, Mo.

Emotions may cause acute organic affections of the nervous system, declares Cheinmisse, who quotes in support of his statement (*Semaine Med.*, July 19, '05) various cases from the literature, in which paralysis, aphasia, hemiplegia, acute myelitis and other symptoms of acute organic affections, some of which lesions were demonstrated on autopsy, were induced by fright, anger, or other emotions.

The toxæmia of pregnancy is dwelt upon by Stone (*Med. Rec.*, Aug. 19, '05), who believes that the vomiting of pregnancy (both the ordinary and pernicious types) and of eclampsia are expressions of hepatic insufficiency. Ordinary urinary examination during pregnancy are not to be relied upon. Indican should always be sought for, and in suspicious cases the total amount of nitrogen excretion should be determined.

MISCELLANY

Wood alcohol, states *Medical Summary*, is always and everywhere dangerous; and there is no warrant for its use or sale for purposes other than as fuel. The harm it works is generally irremediable.

The location of the heart beat had best be determined by its distance from the medium line, and not from the nipple line, as the location of the latter varies widely in different persons. If the apex beat is not perceptible, it can be located by slight percussion.

A coma lasting one hundred and forty-five days, resulting from cerebro-spinal meningitis, is reported in the case of a Yonkers, New York, boy, eight years of age, who sank into unconsciousness on April 8 and remained completely and uninterruptedly comatose until his death on August 31.

The circulation of dirty bank notes has noticeably decreased for some months past, declares *The New York Medical Journal*. This is undoubtedly due to a growing popular aversion to filthy notes, such as has expressed itself in an increased demand on the Treasury Department for their redemption.

Trying it on the Dog.—Prof. Viard, a chemist, fed a dog on some of the adulterated foods frequently sold to and used by man. The animal, a robust Newfoundland, is not expected to live; his stomach had not, as is the case with the human animal, been gradually accustomed to the poisonous and deleterious diet.

The instruction of physicians in the Philippines is a decided necessity, declares the *Medical Record*. Some 2,000 to 3,000 physicians will be needed in these islands during the next twenty years. There is a unique opportunity for the establishment of the ideal university and affiliated professional schools; and there will be no lack of earnest, capable students.

A \$2,000,000 tuberculosis hospital is planned for the poor of New York City to be built on Staten Island. It will be constructed under the auspices of the Department of Charities; and will be separate from the undertaking of the Health Department, to build a sanatorium for incipient cases of consumption in Orange County, New York State. The Staten Island institution will be a hospital for cases in all stages of the disease.

A Nothnagel Scholarship of \$5,000 is announced to be established in memory of the late professor. The yearly income will be awarded as a prize for the best medical essay on such medical problems as may be proposed by the Senate of the University of Vienna. Should no essay be satisfactory, the money is to be expended to encourage research on diseases of the intestines.

The Melbourne Hospital recently found "Royal" to be rather an expensive little word, which the trustees thought would be an ornamental and advantageous addition to the title of their institution. The King on application readily gave permission; but then it was found that fees of £50 would have to be paid to Court officials. Then the trustees felt doubts whether charitable funds should be so expended; and had to call a special general meeting of subscribers to consider the matter.

The City of Zurich, after having grappled successfully with questions of hygiene, impure water and adulterated food, has disposed also of "the final menace to public health—the doctors." To the medical fraternity Zurich is now a closed borough, states an exchange. Forty physicians only have been approved by the municipality, salaried at the rate of £500 each per annum. For this they are to treat all comers gratis. A poll tax of four francs on each inhabitant is levied to pay these salaries.

The model physician should be the cleanest man in the community, physically and morally. His home life should be above reproach and an example to his clientele. As a representative of his profession, he should be well and neatly dressed. His income should be commensurate with the preparation involved and the sacrifices he must make if he is true to the traditions of his calling. So declares Dr. McCormack, of Johnston, Pennsylvania. All of these qualifications, and many more, the physician might command—except the last, in regard to which the fates much too often frustrate his hardest and most conscientious efforts.

A considerate patient, states a French exchange in relating historical medical incidents, had an artery opened by mistake for a vein by a surgeon in the operation of blood-letting. She succumbed not long after to the effects of this blunder, but in her will left the surgeon a small yearly pension, "not only to comfort him, but so that he could live the rest of his life without doing vivisection any more." A similar historic occurrence is related of a Polish princess who had had the same experience. She added a clause to her will expressing her forgiveness and leaving the surgeon a small pension to indemnify him for the "loss of reputation that may follow my sad catastrophe."

Dr. Loeb's researches are fascinating to the popular mind; but the scientist must regard announcements of his work in the light of two or three well-established facts. To stimulate or excite vitality which is latent is not "producing" or "creating" life. The California biologist has worked with eggs, not grains of sand, as an exchange truly observes; and the eggs which he has used are those of sea urchins and starfish, organisms of a low order in the scale of animal life. No feat which Loeb has yet attempted is comparable with that which Nature sometimes performs. The eggs of some insects hatch without fertilization at all. "Parthenogenesis," a phenomenon with which zoologists are familiar, "is more miraculous than any well attested human achievement."

Cholagogues increase the flow of bile. They are of two sorts (*Practitioner*): A. Direct, which act by stimulating directly the liver cells. The following is a good hepatic stimulant: \mathcal{R} Pulveris rhei, gr. v.; Sodii bicarbonatis, gr. v.; Ammonii carbonatis, gr. iij.; Aquæ menthæ piperitæ, \mathfrak{z} ij.; Inf. quass. ad. \mathfrak{z} i. M. S. One dose. Or, \mathcal{R} Sodii sulphatis \mathfrak{z} ss.; Sodii phosphatis \mathfrak{z} ss.; Inf. aurant. co. ad i. M. S. One dose. B. Indirect cholagogues, which clean out the intestinal contents, including the bile, and therefore indirectly stimulate a fresh secretion. Among such mercurials are excellent. The "Blue Pill"—Pilula Hydrargyri—in doses of four to eight grains may be given, or calomel in five-grain doses combined with an equal amount of Bicarbonate of Soda.

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The Medical Record Visiting List for 1906. This old, reliable, well-known publication is ready for delivery. Address Wm. Wood & Co., Publishers, New York.


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Early Relic Cures. That the therapeutic value of prayer is one of the oldest beliefs, is shown by Dr. Hugo Magnus in his new book, "Superstition in Medicine." The early fathers of the Church sought to increase this therapeutic power by means of various accessories and aids, which even now survive in this 20 century. "Thus the Gospel was placed upon the affected part of the body, or clothing of a particularly pious man was spread over the patient. It appears that the sudarium and the coat of the Apostle Paul were held to possess such healing power, and were, therefore, frequently employed as instruments of healing."

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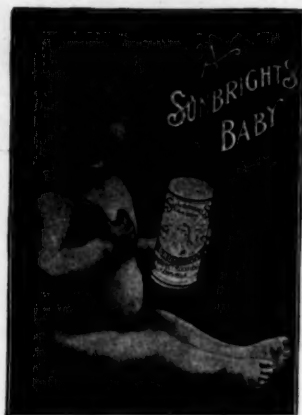
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SELECTIONS

At the last regular meeting of the Board of Directors of the Chicago, Eye, Ear, Nose and Throat College, Dr. A. H. Andrews was elected to a Professorship of Otology and Rhinology.

Messrs. P. Blakiston's Son & Co. announce the issue of their Standard Visiting List for 1906, which is the fifty fifth year of publication. It is the perfection of experienced revision.

The committee in charge of the International Medical Congress, which will be held in Lisbon from April 19 to 26, 1906, requests the contribution of papers on medico-legal subjects—a list of which will be furnished on request—no titles of communications touching on any of these subjects having been received from this country as yet.

The Physician's Pocket Account Book, by Dr. J. J. Taylor, is a neat, compact, easily kept and strictly legal book, carried in the pocket, always with you, showing each person's account at a glance. All entries are made but once, on the day when the services are rendered, in plain legal language, and require no posting or further attention. Price \$1.00. Address the Medical Council, Philadelphia.

Dr. Hecht (Therapie d. Gegenwart, No. 4, 1905) writes on the "Diagnosis and Therapy of Tuberculosis of the Mesenteric Glands in Children." The diagnosis can be made with certainty only when the affected glands or their conglomerates are palpable. He has used Creosotal in this localization of scrofulosis, with the same success which he recorded in the homologous swellings of the bronchial and cervical glands.

Drs. Voelcker and Lichtenberg publish from Czerny's Surgical Clinic at Heidelberg University, a paper on the shape of the urinary bladder as revealed by skiagraphy. The ordinary means of examination as well as cystoscopy give but little information in regard to the shape of the organ. The soluble bismuth compounds are too poisonous to inject into the bladder for the purpose of rendering it opaque, and the insoluble ones are liable to leave material that may form the nucleus of calculi. Two per cent. collargolum solution are, however, eminently adapted for the purpose, for they do not irritate the vesical mucosa.

"Charities" of New York and "The Commons" of Chicago, will be merged after November 1st. The combined weekly journal is a distinctly American idea—more or less of a co-operative undertaking among those who know conditions first hand and are shouldering such movements as housing and child labor reform, the prevention of tuberculosis, and the social utilization of public schools. The editorship will be in the hands of Edward T. Devine of New York, and Graham Taylor of Chicago.

Ethics in Medicines. A well-known medical writer has recently called the attention of his confrères to a difference in proprietary medicines. He has corralled off the sheep from the goats in a generic way, so that even the skeptic may specifically recognize the good from the bad in things proprietary. Some who may have before presumed that no good could come of anything not formulated by themselves, will no doubt be surprised to learn from this ethical physician, speaking to ethical practitioners, that—"with firms of standing the best drugs are used, the published formulas reliable, and the methods of compounding beyond criticism or reproach." Mariani wine is a definite preparation, which, during nearly half a century, has been guarded and conservatively introduced to medical men by a skilled pharmacist, who has made this specialty his life's work, and has jealously maintained his preparation and his representations with the honor and glory that surrounds any good name. Vive la Coca Mariani!

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The temptation should not be yielded to to incise a psoas, hip or other "cold" abscess, except in isolated instances and then only under the most rigid asepsis. The production of a mixed infection means chronic sinus, chronic invalidism and, often, amyloid disease.

Children who complain frequently of pain in the stomach should be examined for evidence of beginning Pott's disease. Such cases treated before the development of curvature usually yield very satisfactory results.

In the early months of pregnancy examinations should be made to determine that there is no retroversion or to treat it if it exists. A retroverted gravid uterus impacted in the curve of the sacrum always aborts.

Before operating for pharyngeal adenoids or hypertrophied tonsils make sure that these are not merely an expression of status lymphaticus. If they are, do not employ an anesthetic. Also determine whether the patient is a hemophiliac. If he is, do not operate at all.

Economy in Food. More and more attention is being given to diet based upon scientific knowledge rather than upon habit or perverted cravings; and the question of economy in food—meaning temperance in diet, with a due appreciation of the dignity of the body and the necessity of meeting the daily wants without imperiling a high degree of efficiency—is one of general interest and vital importance. The October Century will print a discussion of the subject by Russell H. Chittenden, director of the Sheffield Scientific School of Yale University and author of "Physiological Economy in Nutrition." Professor Chittenden's conclusions, arrived at after much study and many careful experiments, are that a daily diet, characterized by simplicity and temperance, so constructed as to harmonize more fully with the true needs of the body, with habitual avoidance of undue excess of food, will lead to physical and mental betterment and to length of life.

The Denver Mfg. Co., of New York, has issued the Second number of "The Bloodless Phlebotomist," which shows how to bleed and save the blood. Write for a copy, and mention this journal.

Treatment of Exophthalmic Goiter. Probably everybody will agree with the statement of A. Alexander that there are few diseases which present such therapeutic difficulties as Basedow's disease. Drugs which have been recommended to-day are pronounced useless or even harmful to-morrow, and even surgical interference has been disappointing. The good results reported after the use of the antithyroid serum of Moebius, or antithyroidin, signify a great advance and prove that the intoxication theory of the disease is, after all, correct. The author was also satisfied with his results, for in most cases he could observe both subjective and objective improvement. The weight increased, the thyroid became smaller, and the exophthalmos and the nervous symptoms disappeared. The patients felt better in every way, and even slept without the use of hypnotics after the second day. Untoward symptoms were never seen. The daily dose varied from 1 to 15 Gm. (15 min. to ½ oz.), until 40 to 100 Gm. (1¼ to 3¼ ozs.) had been given. Occasionally the symptoms reappear, when a second course of treatment should be instituted. Most patients also receive carbonated and salt baths.—Muench. med. Woch., July 18, 1905.

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